PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

Established 1886

Expansion

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—INCORPORATED—

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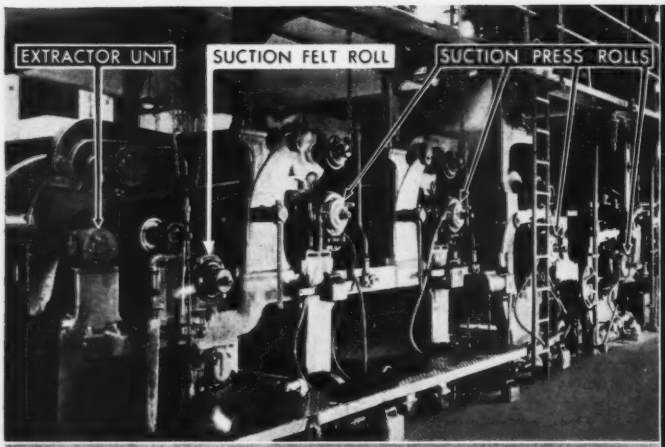
AUG. 26 1937

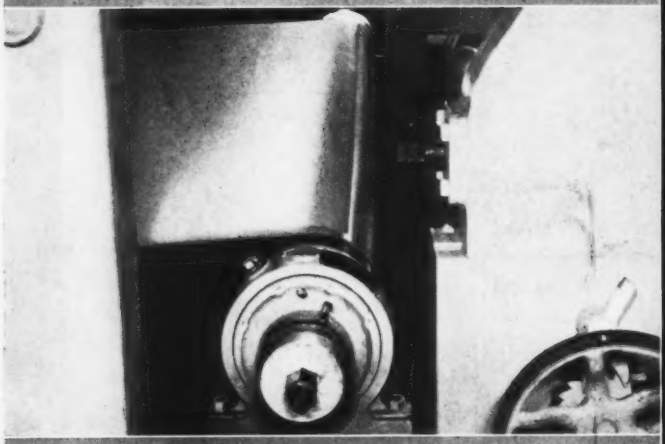
Vol. CV
No. 9

66th Year

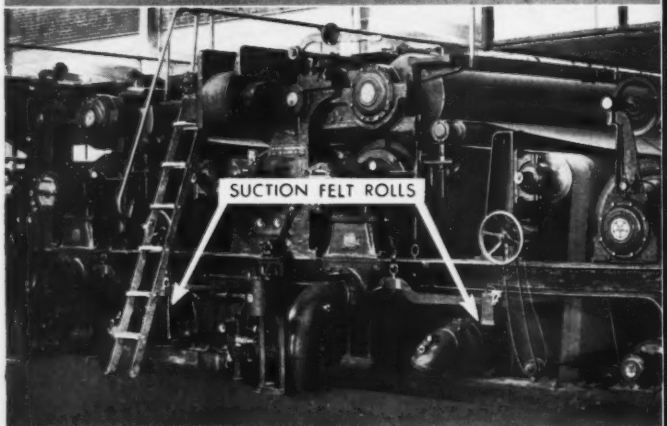
DOWNINGTOWN



Downingtown Suction Felt Roll on Bottom Felt of Board Machine with Duo-Dehydrating Press Part



Downingtown Suction Felt Roll on Press Felt of a Yankee Tissue Fourdrinier Machine, Built by Downingtown



Downingtown Suction Felt Rolls on First and Second Press Felts of 236" Kraft Paper Fourdrinier

BOARD TISSUE KRAFT

Versatility of SUCTION FELT ROLLS

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D

OLDEST MANUFACTURER OF MODERN SUCTION ROLLS

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... MAP THE SLIMFORM TRAIL

S tock losses—bacterial decomposition and reworking of stock

L owered Quality—slime spots—pin holes—objectionable odors

I ncreased Costs—in water—heat—labor—chemicals

M aintenance Troubles—blinded wires—plugged felts

F requent Clean-ups—slime breaks—poor sheet formation

O bstruction of Lines—stock and white water lines

R ecirculation Difficulties—slime growths in recirculated systems

M echanical Strain on felts and wires—shortened useful felt and wire life

WHEN Slimform (slime forming bacilli) infest a paper mill, profits disappear. Not only lowered quality, but also increased production costs and actual loss in paper making materials result from paper mill slime. BUT—You can eliminate slime by the same method used in over 200 leading mills today. Controlled application of chlorine and ammonia will banish slime from your mill—and at a cost of not more than from 1½ cents to 6 cents per ton of product.

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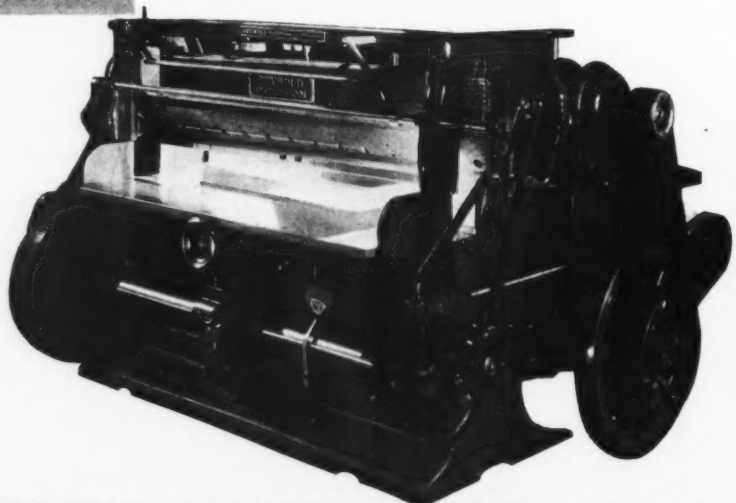

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Reg. U. S. Pat. Off.

SIXTY-SIXTH YEAR

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Tariff Commission Reports On Pulp Industry

Domestic Production of Wood Pulp One-fifth of World Total — Imports Increase as Supply of Spruce and Fir Diminishes — Southern and Pacific Regions Leading Production, With Costs Lower In Pacific Northwest.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., Aug. 25, 1937—Just before Congress adjourned last week the Tariff Commission made a report to Congress on wood pulp and pulpwood asked for by a resolution of Senator Borah of Idaho in August 1935.

In the course of the investigation the Tariff Commission collected extensive data from official sources regarding the wood pulp industry and trade of the United States and foreign countries. In addition, data regarding sales, transportation, costs of production, and other matters were obtained in all sections of the country from pulp producing concerns. Other information was collected from importers and from paper manufacturers and other pulp using industries.

Production of Wood Pulp and Pulpwood

The United States production of wood pulp, amounting to one-fifth of the world total, is greater than that of any other country. Canada, Sweden, Germany, Finland, and Norway, in the order named, are the other most important wood pulp producing countries.

Although there was a substantial fall in world production of wood pulp during the depression, the upward trend during the post-war period has been marked. The 1936 output of wood pulp in the United States of over 5½ million tons exceeded that of 1929 by about one-sixth, and there have been comparable percentage increases in the other pulp producing countries.

The paper industry of the United States uses, in addition to the bulk of the domestic output, large amounts of foreign wood pulp. The United States is the most important country as a market for wood pulp entering international trade. In 1936 this country imported about 2¼ million tons.

United States Paper Consumption

Notwithstanding the large domestic production and imports of wood pulp for use in the domestic paper industry, the United States is far more important as a consumer than as a producer of paper. In 1936 imports of newsprint, the only kind of paper imported in great volume, amounted to about 2¾ million tons. Considering the imports in the form of pulp and in the further advanced form of newsprint paper together, almost as much wood pulp has been imported in recent years as has been produced in this country. In addition to the imports of pulp and paper, 10 to 15 per cent of the domestic production of wood pulp has been made from imported pulpwood.

By reason of the large expansion of pulp production in the South and on the Pacific Coast, the dependence of the United States on imports of paper and materials therefor has not changed materially during the last ten years, but is much greater than before or immediately after the World War. The large importation is explained by the relative exhaustion of the stands of spruce and balsam fir in the Northeastern and North Central regions of the country.

Regional Distribution of the Pulp Industry

An important feature of the United States pulp and paper situation is the regional distribution of the domestic industry in relation to paper consumption. The areas of large paper consumption are in the northeastern quarter of the country, where the concentration of newspaper and other publishers results in a large consumption of printing paper and the concentration of industry and population results in a large demand for fiberboard containers, wrapping paper, and all other kinds of paper. The Northeastern and North Central States produce much less of all three products—pulpwood, wood pulp, and paper—than they consume. The upward trend of United States pulpwood and pulp production in the past decade is accounted for by increases in the Southern and Pacific Coast regions, which produce pulpwood and wood pulp greatly in excess of their paper requirements. Pulpwood and pulp production in the older regions, the Northeastern and North Central, has in the past decade shown a downward trend. These latter areas take the bulk of the imports of pulpwood, almost entirely from eastern Canada; of wood pulp, chiefly from Europe but also in large amounts from Canada; and of newsprint paper, chiefly from Canada. In addition, these same areas draw large amounts of kraft wrapping paper and container board from the South and considerable pulp from the Pacific Coast.

Ground wood, a kind of pulp used principally in the production of newsprint and other of the cheaper

(Continued on page 22)

Famed Kimberly-Clark Mill Council Passes

Has Produced Spirit Of Understanding That No Law Can Blot Out, Says Vice-President Shattuck — Appleton Chamber Of Commerce Stimulates Sentiment Against Excessive Spending To Eliminate Stream Pollution.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 23, 1937—With federal and state labor laws in effect, the far-famed mill council of the Kimberly-Clark Corporation has passed out of existence, and in its place there has been organized an independent union of employees to function for collective bargaining. The company has recognized the union, which has a membership of 2,532 to date out of a potential 3,550 employees, and negotiations are now in progress on wages and working conditions.

The mill council was a democratic type of organization made up of representatives of employees and management, with spokesmen chosen by the workmen from each mill. The council met at regular intervals, and went far in maintaining relations that produced understanding and satisfaction.

Some interesting comments on the transition were made by S. F. Shattuck, vice-president in charge of personnel matters, in an article in the company's employee magazine, *Co-Operation*. He says in part:

"Healthy mutual relationships have taken root in Kimberly-Clark Corporation under the council plan, but federal law has voided the system. The council form of organization is passing into history, but the spirit of understanding that has grown up in Kimberly-Clark Corporation through the years of working together under the council plan is here to stay, and it will go on and on. No law can blot that out. We have progressed beyond mere legal requirements and we shall continue to do so in the days to come."

Mr. Shattuck recites the benefits that have come out of the council plan, notably the adoption of the six-hour day in 1933. "It was a daring move," writes Mr. Shattuck. "It meant higher hourly rates and a heavier payroll load than many competitors are carrying. Perhaps even now, should a ballot on the six-hour day be held in our organization, it might be far from unanimous. We make the guess, however, that when we look back say from the year 1943, we will commend those councilmen who, during the summer of 1933, voted for the six-hour day."

Wage rates have been held at high levels in comparison with average of rates in the pulp and paper industry, the article cites. There has also been developed a body of labor policies (standard instructions) second to none covering the entire field of industrial relations. These are all in the controversial area of industrial life, but are the answer to the men and women in industry who want to know where they stand.

Under the council plan, a wide acquaintance and spirit of fellowship have been developed throughout the organization from the president down. "If this observer is any judge of freedom of speech, we have had lots of it in local and general councils of this organization," adds Mr. Shattuck. He adds: "It is our candid opinion that a high quality of representative government has been at work in this Kimberly-Clark organization during the four years—July, 1933 to July, 1937. It has been a fine bit of training for representatives of employees and representatives of management. Whatever the new form of bargaining organization may be, let us remember that the same people are still here who have battled and bargained and learned to live at peace with each other under the old council plan."

Against Undue Spending

Public sentiment against the aggressive efforts of the Wisconsin State Board of Health to force paper mills to spend unduly large sums in their efforts to eliminate stream pollution is being stimulated by the Chamber of Commerce at Appleton, Wis. It has issued a news bulletin pointing out the tremendous problem involved in waste disposal. It mentions one mill in Appleton that has spent $150,000 in the last five years to cut its waste from 3 per cent to 1 per cent, so as to keep within the limitation of 1½ per cent prescribed by health authorities. Although sewage disposal plants have been built in most Fox River Valley cities, the problem of sulphite wastes is still a serious one, since the acid reaction prevents its delivery to such plants. Even a million dollar installation in one Wisconsin plant to eliminate sulphite wastes has not proven entirely satisfactory, the bulletin says.

Safety Conference for Neenah

Neenah, Wis., probably will be the location of the Fox River Valley and Lake Shore Safety Conference for 1939. H. A. Klemm, of the industrial safety department of the Wisconsin Industrial Commission, visited valley cities last week making the arrangements, and said Neenah is contemplated as the location. The 1938 conference will be held in June at Green Bay, Wis., with J. M. Conway, president of Hoberg Paper Mills, Inc., making the arrangements as general chairman.

Nuptials of Interest to the Industry

Robert Durbrow, who has been an administrative assistant at the Institute of Paper Chemistry, Appleton, Wis., and Miss Marianne Pengelly were married at Washington Park Presbyterian Church, Milwaukee, Wis., Saturday, August 21. The bride was formerly in the personnel department of the Kimberly-Clark Corporation, Neenah, Wis. Mr. Durbrow will this fall assume new duties as assistant to the dean of Lawrence College, with which the Institute is affiliated, and will be resident supervisor of Brokaw hall, on the college campus.

The marriage also took place Saturday afternoon, August 21, at Trinity Evangelical Lutheran Church of Kaukauna, Wis., of Kenneth R. Wink of Milwaukee, Wis., and Miss Margaret Anderson of Little Chute, Wis. Mr. Wink is employed in the research department of the Kimberly-Clark Corporation, Neenah, Wis. The bride was a laboratory assistant at the Kimberly-Clark mill at Kimberly, Wis. The couple will reside in Appleton.

Canadian Mills Attain Production Record

With the July Output of Newsprint at 314,529 Tons, Production is Up Over Fourteen Per Cent in Year — Over-Expansion is Feared — Premier Duplessis Appeals to the Government for Policy to Direct the Industry.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 23, 1937—The publication of the July figures of newsprint production in Canada has started another discussion in the financial press here regarding the possibility of an actual shortage of newsprint in the fall. The Canadian mills in July produced the second newsprint output 314,529 tons, an increase of 14.6 per cent as compared with the production in July, 1936.

President Vining on Production

Charles Vining, president of the Newsprint Association of Canada, in an address before the Canadian Club of Montreal in February last, expressed the opinion that the maximum production limit of all Canadian newsprint mills during 1937 was somewhere between 3,500,000 and 3,600,000 tons. For the first 7 months of the year, according to figures supplied by the Newsprint Service Bureau, production of newsprint in Canada was 2,098,047 tons, which is at the rate of 3,596,652 tons for the full 12 months, or close to the maximum figure suggested by Mr. Vining. Seasonal trends in the newsprint industry show that August, October, November, and December are months of heavy demand; hence the deduction that indications point to actual shortage in supply before the end of 1937.

The conditions at present are much the same as those which prevailed in 1926, and which preceded an expansion spree in the newsprint industry. Productive capacity, it will be remembered, was boomed to hitherto unknown heights, to be followed by a disastrous collapse that sent practically every newsprint enterprise in the country into bankruptcy.

Government Asked to Aid Industry

Efforts are now being made to prevent a repetition of over-expansion. Premier Duplessis of Quebec has appealed to the Ontario Government for collaboration in formulating a common policy to "direct but not administer" the industry. Meanwhile he has forbidden the opening of new pulp and paper mills until those closed have been put into operation, and has established measures to prevent export of any pulpwood.

Premier Wants Better Production Policy

The end to which Premier Duplessis is working is the maintenance of a fairly even balance between supply and demand and the adoption of a considerate price policy. These two would ensure a long period of prosperous conditions in the industry.

Ontario Companies Expanding

Currently there is a good deal of expansion underway. The Ontario Paper Company's 100,000 ton newsprint plant at Comeau Bay is scheduled to come into operation next July. Consolidated Paper is considering plans for bringing further machines into operation in existing mills. The Ste. Anne mill at Beaupre, with two 234-inch Fourdriniers, is ready to go into production. St. Lawrence mills recently brought the last of its machines into operation. There is talk of adding to the capacity of the James Maclaren mill at Masson.

Production Trend Upward in New Brunswick

In New Brunswick the Bathhurst Power and Paper Company, by reconditioning its machines, will add about 21,000 tons to its annual capacity. Both the Fraser Companies and the International Paper are being urged by the New Brunswick Government to enlarge their pulp production. From Newfoundland there have been persistent reports of the possibility of adding new machines to existing plants.

Paper Stock Burned at Cincinnati

DAYTON, Ohio, August 23, 1937—A loss exceeding $43,000, including the destruction of 5,000 bales of waste paper, was entailed at a fire in the yard of the Container Corporation of America, 5500 Eastern avenue, Cincinnati last week. Twelve companies fought the spectacular night blaze all night and some of the firemen necessarily remained at the scene all of the following day because of the fear of a further outbreak of the flames.

Damage to paper, alone, according to a conservative estimate was $25,000.

Officials of the Pennsylvania Railroad Company said that 12 freight cars filled with paper consigned to the company were destroyed by the fire. They were able to remove 29 cars from the Container Corporation's railroad siding. The 12 cars were damaged to the extent of $18,000, the officials reported.

Because of a large number of orders on hand at the time of the fire, special efforts were made to keep the plant running in order not to interfere with the output and in this, the officials of the company were successful.

Estimates placed the value of the paper stock at $60,000 and it was said that approximately half of it was burned up or ruined by water.

Firemen were of the opinion that a lighted cigarette, flipped into the yard by a passing motorist, driving along Eastern Avenue, had caused the fire.

Jack Allen, plant superintendent, who resides at 3902 Germania avenue, ran from the factory when the fire was reported and took charge of directing things until the firemen arrived.

Government Paper Bids

WASHINGTON, D. C., August 25, 1937—The Government Printing Office has received the following bids for 10,000 sheets of white cloth lined paper: Whitaker Paper Company, at $110.97 per M sheets; Reese & Reese, Inc., $110.80; R. P. Andrews Paper Company, $114.53; Mathers-Lamm Paper Company, $110.00 and $113.99; Barton, Duer & Koch Paper Company, $11.53; George W. Millar & Co., $119.70; Virginia Paper Company, $11.75; Walker, Goulard Plehn Company, $114.00 less 2 per cent; and Resolute Paper Products Corporation, $117.10 less 2 per cent.

Speculate On Kraft Production In South

Additional Tonnage Is Having No Effect On Strength Of Kraft Market—Paper Is Becoming Leader In Industrial Plant Development — Container Corp. Plans Accurate Course of Procedure — Other News of Industry.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 23, 1937—While a popular topic of conversation is made up of guessing just what effect the production of kraft in the new southern mills is going to have on the market, the Chicago trade continues to swelter through August with business on a firm basis and with the outlook for higher prices still very prevalent. Whatever the effect of the new kraft production may be it is having no effect on the strength of the product in this vicinity and the preponderance of opinion is that only a gradual effect will be noticed which should upset nobody's plans for continued improvement in the kraft market.

Scarcity in sulphites continues to give a strong tone to this grade of paper in Chicago. Fine papers are reported as in fair demand with sales retarded somewhat by the seasonal slackening in buying. Certain grades of paper shared in the slight disappointment over a less dominant retail trade than was expected but expansion in other markets has virtually made up for this loss. Book and cover papers remained about the same during the week. Specialties were reported as spotty in character. The board market was firm, a situation reflected in the improvement in the board waste markets. Mixed news and folded news were also in better demand while shavings and cuttings turned more firm during the week.

Paper Leads Plant Expansion

From a virtual nonentity a few years ago to prominence as a leader in industrial plant development is the record of the paper industry according to the Austin Company, industrial plant engineers and builders. The big firm with a nationwide clientele gives two reasons for the jump which placed the paper industry second only to steel as an expansion industry with splendid prospects for future growth as well. First, there is the geographical shift within the industry which is being followed with interest by all executives of the paper trade. Second there is the motivating influence of new and extended uses of paper which have forced leaders in the industry to expand and, in certain instances, to find new locations and which have invited new capital into the field. The company expects the immediate future to continue bright as far as the industrial plant development of the industry is concerned.

Container Profit Forecasts Described

"How Container Corporation Forecasts Profits" is the title of an interesting article appearing in "American Business" for August. The article describes how the Container Corporation of America utilizes a P. & L. and a balance sheet drawn up six months in advance to plan an accurate course of procedure. The first factor in preparing the profit-and-loss statement and forecast is an estimate of sales and production. Estimates of sales are prepared by the sales department from its knowledge of current and future trends, past performance and sales report. With sales figures broken down in detail the accountants begin preparing estimates for the forecast. The factory margin report is utilized, showing a breakdown of shipments of paperboard by grades and margins by grades. Other sets of figures kept current art inventories of various raw materials, work in progress, analysis of variances, the latter showing variations between actual and standard costs on work in process. Paper mill production as well as fiber and corrugated board production are also carefully recorded by machines, by grades and by board combinations. Plant expense is detailed on reports showing the cost of labor according to a part of the article describing the Container methods.

New Kalamazoo Product

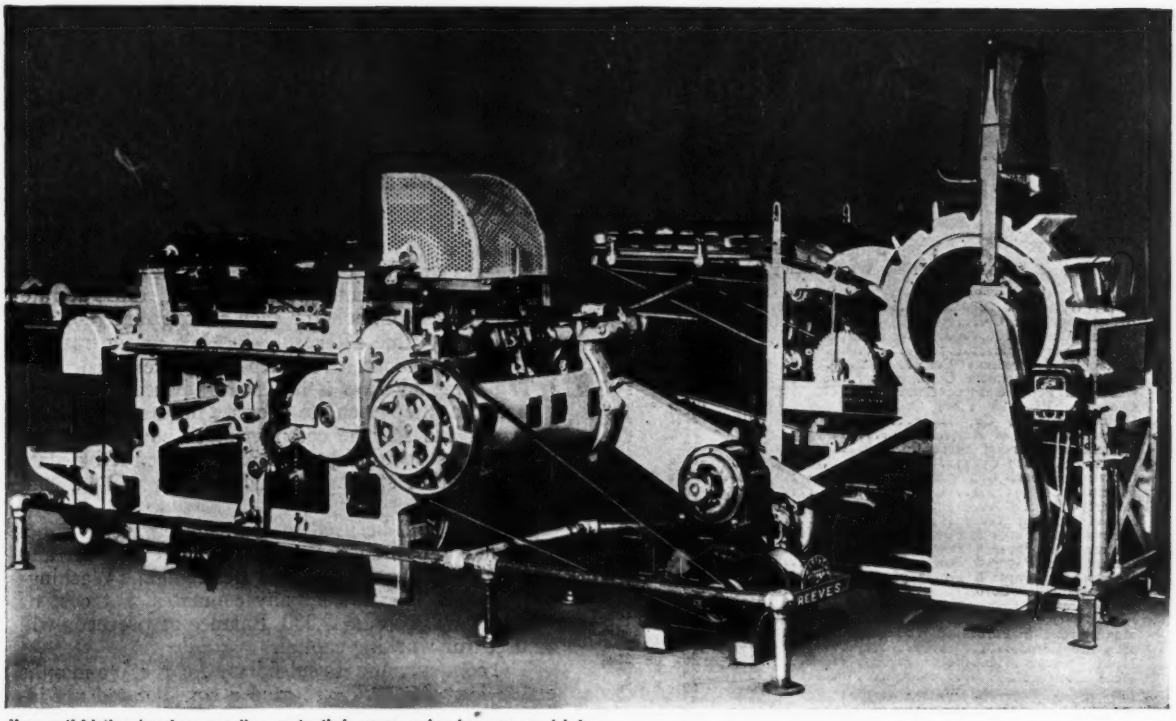
The merchandising possibilities and sales potentialities of a new paper cloth manufactured by the Kalamazoo Vegetable Parchment Company are being weighed with a great deal of interest by the local trade as a possible pointer to new uses for paper. The Kalamazoo organization has perfected a self-cleaning wash cloth of crinkled vegetable parchment paper. The paper is perforated with holes nearly one inch apart which are said to aid materially in the cleaning work of the paper. The product may be used as a wash cloth or dish cloth and may be laundered after using. Inasmuch as dirt does not adhere to the wash cloth it becomes an hygienic effective and comparatively economical product for general consumption throughout the country and offers another striking example of the potentialities within the grasp of the paper industry.

Woodpulp Rate Decision

A decision bearing to a marked extent on reduced rail import rates on wood pulp has just been reported locally by the Interstate Commerce Commission. Decision was entered in the protest filed by the Columbian Paper Company of Bristol, Va., which complained that its domestic rates on wood pulp from Bristol, being higher than import rates, were unreasonable. The Commission relied on precedent in holding that rates depressed by water competition are not fair measures of reasonableness. The decision has a particular effect on wood pulp tonnage moved over water routes, through the Great Lakes and then by truck inland from lake ports to paper manufacturing plants in the middle western territory.

Dwight Entertains Lithographers

Members of the lithography industry in both Milwaukee and Chicago enjoyed a combination outing and educational tour of Milwaukee plants under the auspices of the Sinclair & Valentine Company during the latter part of July. A total of seventy Chicago lithographers made the trip which included an entertaining power boat trip on Lake Michigan under the auspices of the Dwight Brothers Paper Company, Milwaukee headquarters.



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Financial News of Pulp and Paper Industry

Puget Sound Pulp & Timber Co. Files Under Securities Act — Brown Co. Creditors Urge Acceptance of Reorganization Plan — Lake Sulphite Pulp Co. on Toronto Exchange — Port Royal Offers $625,000 In Bonds.

New York Stock Exchange

High, Low and Last for the Week Ending August 25, 1937

	High	Low	Last
A. P. W.	7⅛	7	7⅛
Armstrong Cork Co.	63½	61⅝	62½
Celotex Corp.	39⅜	37	37
Celotex Corp., pfd.	77	77	77
Certain-Teed Products Corp.	13⅝	13	13⅛
Certain-Teed Products Corp., pf.	53¼	51⅝	51⅝
Champion Paper & Fibre Co.	57	54	54
Champion Paper & Fibre Co., pf.	109½	109½	109½
Congoleum-Nairn Co.	30½	37½	37⅜
Container Corp. of Amer.	28¾	27⅜	28½
Continental-Diamond Fibre Co.	19	18	18
Crown Zellerbach Co.	22¼	20¼	21⅝
Crown Zellerbach Co., cum. pf.	99¾	99⅛	99⅝
Flintkote Co.	31⅛	29	29⅝
Robert Gair	13½	12¼	13¼
Robert Gair, pf.	33¼	32	32⅞
International Paper & Power (a)	20	18¾	19
International Paper & Power (b)	14⅝	13½	14
International Paper & Power (c)	7⅜	7	7⅛
International Paper & Power pf.	108¾	105½	105½
Johns-Manville Corp.	137⅞	132	132
Johns-Manville Corp., pf.	124	124	124
Kimberly-Clark Corp.	41	40	40
MacAndrews & Forbes	32½	32½	32½
Masonite Corp.	54½	50	53
Mead Corp.	27⅛	26	26¾
Mead Corp., pf.	90	90	90
Paraffine Companies, Inc.	70	69	70
Ruberoid Co.	36¾	34	34
Scott Paper Co.	43	41½	43
Sutherland Paper Co.	33¾	32	32
Union Bag & Paper Corp.	79¾	77	78
United Paperboard Co.	10⅝	10½	10⅝
U. S. Gypsum Co.	115½	113½	113½
U. S. Gypsum Co., pf.	160½	160	160½

New York Curb Exchange

High, Low and Last for the Week Ending August 25, 1937

	High	Low	Last
American Box Board Co.	20	19½	19½
Brown Co., pf.	79	75	79
Great Northern Paper Co.	40	39¼	39¼
St. Regis Paper Co.	8⅝	8⅛	8¼
Taggart Corp.	10¼	9⅞	10

Puget Sound Files With SEC

WASHINGTON, August 23, 1937—Puget Sound Pulp and Timber Company has filed registration statement with SEC under Securities Act of 1933 covering 125,000 shares 6 per cent cumulative convertible preferred stock, $20 par value, 233,000 shares common stock and stock-purchase warrants for 45,500 shares common. Of the common shares registered, 187,500 shares will be reserved for conversion of the preferred and 45,500 shares for exercise of the warrants.

Bankamerica Company will underwrite 83,334 shares of the preferred and Battelle, Dwyer & Company will underwrite 41,666 shares.

The stock-purchase warrants are to be delivered to the underwriters without cost, entitling them to purchase 45,500 shares common stock on or before June 30, 1939, at $12.50 per share. Registration statement says that if Roy K. Ferguson exercises a preferential right to purchase 20,000 shares of the preferred stock, then the warrants held by the underwriters will be exercisable at $13.75 per share. Mr. Ferguson is president of St. Regis Paper Company and of its subsidiary, St. Regis Kraft Company.

Offering price of the preferred will be filed by an amendment.

The preferred is convertible into common at the following rates: Prior to July 1, 1938, at the rate of 1½ shares common for each share preferred; on and after July 1, 1938, and prior to July 1, 1939, at rate of 1¼ shares common for each share preferred, and on or at any time after July 1, 1939, at the rate of 1 1/9 shares common for each share preferred.

The company says it has been advised by underwriters that they intend to exercise the stock-purchase warrants and sell the common stock covered by the warrants as soon as practicable after effective date of registration statement. Such shares will be sold at the market.

Proceeds will be used to complete payments for a site for a proposed new pulp mill and to erect and equip an additional unit to its Bellingham (Washington) pulp mill. The company estimates that cost of new unit will be $2,208,000. Balance of proceeds will be used for working capital.

The company and its subsidiary for the five months ended May 31, 1937, reported a consolidated net income of $151,880 after all charges and taxes, but before provision for surtax on undistributed net income. In the year ended December 31, 1936, consolidated net income after all charges and taxes was $8,827, compared with net income of $4,345 in previous year.

SEC Amendments Show War Fear

WASHINGTON, D. C., August 23, 1937—Possible effects of the Far Eastern strife on American exporting business were outlined by three West Coast pulp and paper companies in amendments filed with the Securities and Exchange Commission in connection with proposed offerings of new securities.

The companies—Rainier Pulp and Paper Company, Olympic Forest Products Company and Grays Harbor Pulp and Paper Company—said foreign deliveries may be interfered with by wars, embargoes, foreign trade or exchange restrictions, or other causes not within their control and specifically mentioned the Japanese military campaign in China.

The three companies are engaged in producing to a substantial extent bleached sulphite pulps by processes developed by Rainier Pulp and Paper Company. Practically all the pulps so produced are sold by and in the name of Rainier with the other two companies participating in the returns in accordance with contracts with Rainier.

During the calendar year 1937, Rainier Pulp is committed to sell approximately 233,000 tons of dissolving pulps of which 124,000 tons will be to Japan. The balance is distributed as follows: United States 80,500 tons; France 15,000 tons; Belgium 6,500 tons; England 5,500 tons, and Argentina 1,500 tons.

If sales of dissolving pulps in foreign countries are cut off, the amendments state that it may become necessary to utilize a part of plant capacity, now used for the production of dissolving pulps, in the production of ordinary grades of bleached sulphite paper

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pulp. This, it is stated, can be done without material changes in machinery or equipment.

Amendments filed by each of the companies disclose that plans are now under consideration looking toward a consolidation or merger of the three corporations. The amendments also explain that it is expected that, upon completion of the present financing by each company, a plan of consolidation will be submitted to the directors and stockholders.

If such consolidation or merger is approved, the principal business of the consolidated company would be the production and sale of dissolving pulps, the manufacture of sulphite printing and writing papers, and the production and sale of ordinary grades of bleached sulphite pulp.

Brown Creditor Group Urges Plan

The general creditors' advisory committee of the Brown Company has issued a statement urging prompt acceptance by all interested parties of the plan of reorganization filed with the federal district court at Portland, Me., recently. The committee's statement says:

"The general creditors' advisory committee strongly favors an early reorganization of the business and affairs of Brown Company and willingly extends to the company its earnest support in any endeavors the company may make to this end.

"Recognizing that it is quite usual for reorganization plans to be amended from time to time, the committee, therefore, has approved the plan as filed in principle. The committee commends the principal features of the plan to all interested parties and urges its prompt acceptance."

The plan calls for payment of all claims 100 cents on the dollar together with all past due interest on bonds and provides $12,500,000 in new financing of which $6,500,000 is for plant expansion at the La Tuque, Canada, properties made necessary by new business.

The general creditors' advisory committee is headed by C. Claflin Young, of C. W. Claflin Company. The committee says it represents more than $800,000 of the $1,530,462 in unsecured claims.

Lake Sulphite Listing Approved

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 23, 1937—Application to list the common shares of Lake Sulphite Pulp Company Limited has been approved by the managing committee of the Toronto Stock Exchange. Lake Sulphite has a capitalization of 300,000 no par value common shares, with 150,007 outstanding and 5,000,000 5½ first mortgage 20-year bonds, of which 3,000,000 are to be outstanding.

At present over 1,000 men are employed and the construction program at Nipigon, which calls for the completion of the first 200-ton unit by June 1, 1938, is ahead of schedule.

Lake Sulphite has an agreement with the Province of Ontario for cutting rights on approximately 1,981 square miles of timber limits and has recently acquired from Canadian International Paper Company all of the outstanding shares of Nipigon Corporation, Ltd., which possesses a ground wood pulp mill, having a capacity of 40 tons a day. Nipigon Corporation has cutting rights on approximately 1,397 square miles of timber limits adjacent to the properties held by Lake Sulphite, this making the latter the leading limit owner in the Nipigon area by the acquisition.

Lake Sulphite informed the Toronto Stock Exchange that over 80 per cent of the mill output for next year has been sold at 1938 contract prices. The current contract price of bleached sulphite of the grade to be made by Lake Sulphite is approximately $70 a ton ex-dock Atlantic seaboard for the current quarter. This compared with a price of about $55 a ton during the first quarter of this year when the company was incorporated.

Port Royal Raises Additional Capital

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 23, 1937—Port Royal Pulp and Paper Co., Fairville, N. B., is raising additional capital through the sale of $625,000 of 5 per cent first mortgage serial bonds. The proceeds of the issue will be used by the company to retire the present outstanding issue of $350,000 of 5 per cent serial bonds; to cover capital expenditures made in connection with changing over the plant for the manufacture of rayon pulp; and for general corporate purposes.

New contracts have been entered into by the company for its entire output from July 1, 1937, to December 31, 1938, at a substantially higher price than at which output of the plant was being sold prior to July 1. At the new contract price it is estimated that net operating profits for 12 months ended May 31, 1938, will amount to over $300,000 before provision for depreciation and income tax. This contrasts with earnings of $163,194 on the same basis during year ended May 31, 1937.

Rhinelander Paper Co. Nets $207,193

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 23, 1937—Increased demand and a sustained capacity production have brought to the Rhinelander Paper Company, Rhinelander, Wis., net earnings of $207,193 for the first seven months of this year, Folke Becker, president, announced last week. This is about $50,000 ahead of the comparable period of 1936, and comes close to the total earnings for the year of 1936, which were $237,120. These figures are after deduction of state and federal normal taxes.

Earnings are equal to $1.38 a share on 150,000 shares of common stock, par value of $10 a share. The 1936 figure was $1.58 a share on 30,000 shares at $100 par. On July 1 of this year the common stock was split five for one. These figures show a continued gain in earnings, as the profit for the year 1935 was $145,255.

Continued favorable earnings for the remainder of the year are forecast by the company.

Kimberly-Clark Corp. Pays Extra

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 23, 1937—Directors of the Kimberly-Clark Corporation, Neenah, Wis., last week declared a regular quarterly dividend of 25 cents and an extra dividend of 50 cents on common stock of record Sept. 11, payable October 1. A dividend of $1.50 a share was declared on preferred stock.

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TARIFF COMMISSION REPORTS ON PULP INDUSTRY

(Continued from page 13)

white papers, is produced in large quantities in the New England, Middle Atlantic, and Lake States, and is also produced in considerable quantities in the Pacific Coast region.

Production of sulphite pulp in the United States is distributed among different areas in much the same way as the production of ground wood, excepting that a larger proportion is produced in the Pacific Northwest. The marked expansion of pulp production in the Pacific Coast region in recent years has been principally in sulphite. Sulphite pulp is used unbleached in admixture with ground wood and other materials in the production of many kinds of the cheaper "white" papers, such as newsprint. Bleached sulphite is used in large quantities in the production of the better grades of white paper, such as book, magazine, and writing paper. Increasing but still relatively small quantities of highly purified bleached sulphite pulp are used in the production of rayon and other cellulose compounds.

The pulp production of the South is confined almost entirely to sulphate (kraft) pulp, a kind used principally in brown wrapping paper and container board. Sulphate pulp is also produced in substantial quantities in the Lake States of Michigan, Wisconsin, and Minnesota, and in the Pacific Northwest, but the great increase in United States production of sulphate in recent years is accounted for by the expansion of the Southern industry. In spite of this expansion of domestic production, increasing quantities of sulphate pulp have been imported. The increase in the United States consumption of such pulp is attributable mainly to the marked expansion of the demand for container board, which in turn is in part attributable to the substitution of fiberboard for wooden containers.

Integration of Pulp and Paper Mills

Wood pulp is produced in the United States principally by plants that are integrated departments of pulp-paper mills. Nearly all the United States output of kraft pulp and of ground wood is produced in such integrated establishments, and little of these kinds is sold in the form of pulp by domestic mills.

The larger part of the domestic production of sulphite pulp is also made in integrated establishments, but there is a substantial production, particularly on the Pacific Coast, and to a smaller extent also in the Northeastern and Lake States, of sulphite pulp for sale. A considerable export trade in sulphite has developed from the Pacific Coast, principally to Japan. Most of the exports, as well as of the sales in the domestic market, consist of bleached sulphite, and a substantial proportion, especially of the exports, is of grades for use in the production of rayon. Most of the pulp sold by Pacific Coast mills in domestic markets, as well as by mills in the Northeastern and Lake States, goes to converters in the eastern part of the United States.

In spite of the considerable sales of sulphite pulp by domestic mills, those paper mills which do not produce their own pulp supplies are dependent to a very large extent on imports. The same is true in much greater degree of sulphate and of ground wood; however, such non integrated paper mills use relatively little ground wood.

The large and expanding kraft pulp industry in the South is conducted almost entirely in integrated pulp-paper establishments. The South ships little sulphate pulp to the Northeastern and North Central States but supplies them instead with large amounts of brown wrapping paper and container board.

The competition of pulp imports with those domestic pulp mills which produce pulp for sale is more direct than the competition with integrated pulp-paper mills, although indirectly, after conversion into paper imported pulp with respect to sulphite pulp, and particularly bleached sulphite; in other words the sales of sulphite by Pacific Coast mills and the smaller sales by mills in the Northeastern and Lake States are especially subject to the competition of imports in the form of pulp.

Pulp Prices

The prices of all kinds of pulp in the United States fell sharply after 1929, recovered somewhat in 1933 and 1934 with the decline in the foreign exchange value of the dollar, weakened in 1935, and since the middle of 1936 have risen markedly. Present prices of wood pulp are higher than for a good many years past.

Cost of Production in Different Regions

The Commission's investigation discloses that costs of producing wood pulp are generally considerably lower in the Pacific Northwest than in the Northeastern or Lake States. In the case of ground wood, however, costs of production averaged little lower in the mills from which cost data were obtained on the Pacific Coast than in the Northeastern section of the country. The generally lower costs of production on the west coast are largely attributable to the much lower costs of pulpwood there. Lower average wood costs are shown by that region for both ground wood and chemical pulps but in respect to ground wood conversion costs average high as compared with those of Northeastern mills. The costs of producing sulphate pulp are lower in the South than even in the Pacific Coast region, and again the relatively low costs of Southern mills are attributable to extremely low prices of Southern pine pulpwood.

The costs of production referred to above are exclusive of transportation on such pulp as is shipped to separate converting mills. The advantages of lower costs of pulp production in the Pacific Northwest and Southern regions are in part offset as regards the part shipped as pulp or paper to Northeastern and North Central markets by transportation charges.

Present prices of wood pulp, generally speaking, result in mill net realizations per ton on sales above average costs of production of representative mills in all regions and particularly of mills on the Pacific Coast and in the South; sales by Southern mills are very small, but presumably the prices which the integrated mills receive for paper also exceed cost. The possible effects on prices and margins of the additional plant capacity now being installed in the South and on the Pacific Coast cannot be forecast.

Possible Future Developments

So far Southern pine has been used in large quantities only in the production of kraft pulp for use in

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the manufacture of brown wrapping papers, container board, and similar products. The rapid expansion of the Southern kraft industry has in part, though not entirely, taken care of the great increase in the demand for these products in the United States. With further expansion of the pulp industry in the South which is now taking place the dependence of the Northeastern and Lake and Central States on imports of kraft pulp may be greatly lessened, although if the consumption continued to increase at the rate of the recent past, imports of sulphate or kraft pulp may also be increased.

The Pacific Coast may for some time continue to increase its shipments of pulp (as such or in paper) to the eastern consuming regions, but probably not at a rate sufficient greatly to lessen the dependence of these regions on imports of sulphite pulp and of paper made from sulphite and ground wood pulp.

The situation with respect to white papers may be completely changed if a large production of pulp suitable for use in the production of white papers should develop in the South. Many people in the industry are of the opinion that Southern pine can be economically used in large quantities for the production of white pulps. If the large and fast-growing stands of Southern pine should come to be used for the production of white paper, such as newsprint, a great reduction in the imports of sulphite pulp and of newsprint paper may occur.

Production of Wood Pulp 1936

The consumption of pulpwood and the production of wood pulp in the United States increased 14.3 per cent and 15.6 per cent, respectively, in 1936 as compared with 1935, according to a preliminary report released last week by Director William L. Austin, Bureau of the Census, Department of Commerce. The figures for the two years are: Pulpwood consumed—1936, 8,715,916 cords, costing $67,161,447; 1935, 7,628,274 cords, $58,243,652. Wood pulp produced—1936, 5,695,219 tons, valued at $165,272,519; 1935, 4,925,669 tons, $149,981,900.

All figures for 1936, as given in the tables below, are preliminary and subject to revision.

TABLE I.—PULPWOOD CONSUMPTION, BY QUANTITY AND COST, BY KIND OF WOOD, FOR THE UNITED STATES: 1936 AND 1935

Kind of Wood	1936 Cords	1936 Cost	1935 Cords	1935 Cost
Total	8,715,916	$67,161,447	7,628,274	$58,243,652
Spruce:				
Domestic	1,756,977	18,516,891	1,755,112	17,906,240
Imported	735,305	9,052,878	625,462	7,835,799
Yellow pine, Southern	2,150,640	10,834,867	1,785,228	8,527,145
Hemlock, domestic and imported [1]	1,742,268	11,500,551	1,521,271	10,234,560
Poplar:				
Domestic	464,138	3,834,631	333,773	2,661,247
Imported	44,724	575,063	54,283	604,664
Balsam fir:				
Domestic	365,189	3,480,867	298,812	2,597,798
Imported	81,383	866,410	54,313	583,266
Jack pine	289,538	2,494,650	224,538	1,779,425
White fir	119,221	652,351	174,075	880,728
Beech, birch, and maple	118,461	963,759	152,054	1,280,443
Tamarack (larch)	10,005	85,347	9,587	69,638
Gum	37,632	233,813	29,299	191,893
Yellow poplar	91,818	724,700	317,675	1,867,727
Cottonwood	58,749	417,747		
Other woods [2]	320,033	1,584,743		
Slabs and mill waste	329,835	1,342,179	292,792	1,223,079

[1] Combined to avoid disclosing the quantity consumed by an individual establishment.

[2] Domestic buckeye, cedar, chestnut, Douglas fir, linn, oak, white pine, and willow, and miscellaneous hardwoods not reported separately, and imported jack pine, for 1936. For earlier years, see published reports.

TABLE II.—WOOD-PULP PRODUCTION, BY QUANTITY AND VALUE, BY PROCESS, FOR THE UNITED STATES: 1936 AND 1935

Process	1936 Tons of 2,000 lbs.	1936 Value, f.o.b. mill	1935 Tons of 2,000 lbs.	1935 Value, f.o.b. mill
Aggregate	5,695,219	$165,272,519	4,925,669	$149,981,900
Mechanical, total	1,475,620	25,381,285	1,355,819	24,972,104
Not steamed	1,414,091	24,304,147	1,205,199	22,224,975
Steamed	61,529	1,077,138	150,620	2,747,129
Sulphite fiber, total	1,821,842	77,190,691	1,579,567	70,425,758
Unbleached	693,903	22,486,897	634,947	21,909,660
Bleached, total	1,127,939	54,703,794	944,620	48,516,098
Superpurified	108,600	6,347,853	63,066	4,817,774
Rayon & special chemical	198,994	11,446,079	126,470	7,170,113
Other bleached	820,345	36,909,862	755,084	36,528,211
Sulphate fiber, total	1,794,734	42,122,178	1,467,749	36,008,886
Unbleached	1,639,153	36,482,163	1,340,288	31,213,254
Bleached	155,581	5,640,015	127,461	4,795,632
Soda fiber and semi-chemical*	557,695	20,148,594	485,162	18,165,468
Screenings, total	45,328	429,771	37,372	409,684
Mechanical	7,357	51,158	3,902	22,146
Chemical	37,971	378,613	33,470	387,538

* Combined to avoid disclosing, exactly or approximately, amounts produced by individual establishments.

TABLE III.—PULPWOOD CONSUMPTION, BY QUANTITY AND COST, AND WOOD-PULP PRODUCTION, BY QUANTITY AND VALUE, BY STATES: 1936

(Statistics are given for all States for which separate figures can be published without disclosing, exactly or approximately, any data for individual establishments. The establishments in certain of the "Other States," however, consumed larger quantities of wood and produced larger quantities of pulp than those in some of the States shown separately.)

State	Wood consumed: Cords	Wood consumed: Cost	Pulp produced: Tons of 2,000 lbs.	Pulp produced: Value, f.o.b. mill
United States	8,715,916	$67,161,447	5,695,219	$165,272,519
Louisiana	723,062	3,246,076	474,332	10,095,690
Maine	1,176,636	11,731,101	933,510	23,680,643
Michigan	307,818	3,012,163	198,169	6,616,342
Minnesota	323,416	2,624,354	218,633	5,554,320
New York	574,937	7,018,261	452,941	13,429,024
Oregon	423,839	2,754,038	302,634	6,695,145
Pennsylvania	303,828	3,635,687	173,407	8,214,502
Vermont	14,385	150,579	15,488	302,557
Virginia	529,535	3,295,221	333,982	9,367,590
Washington	1,509,340	8,229,307	895,797	27,549,520
Wisconsin	1,034,601	10,443,751	605,377	23,050,140
Other States [1]	1,794,519	11,020,909	1,090,949	30,717,046

[1] Alabama, Arkansas, Florida, Georgia, Maryland, Massachusetts, Mississippi, New Hampshire, North Carolina, Ohio, South Carolina, Tennessee, and West Virginia.

Geo. W. Millar & Co. Play Golf

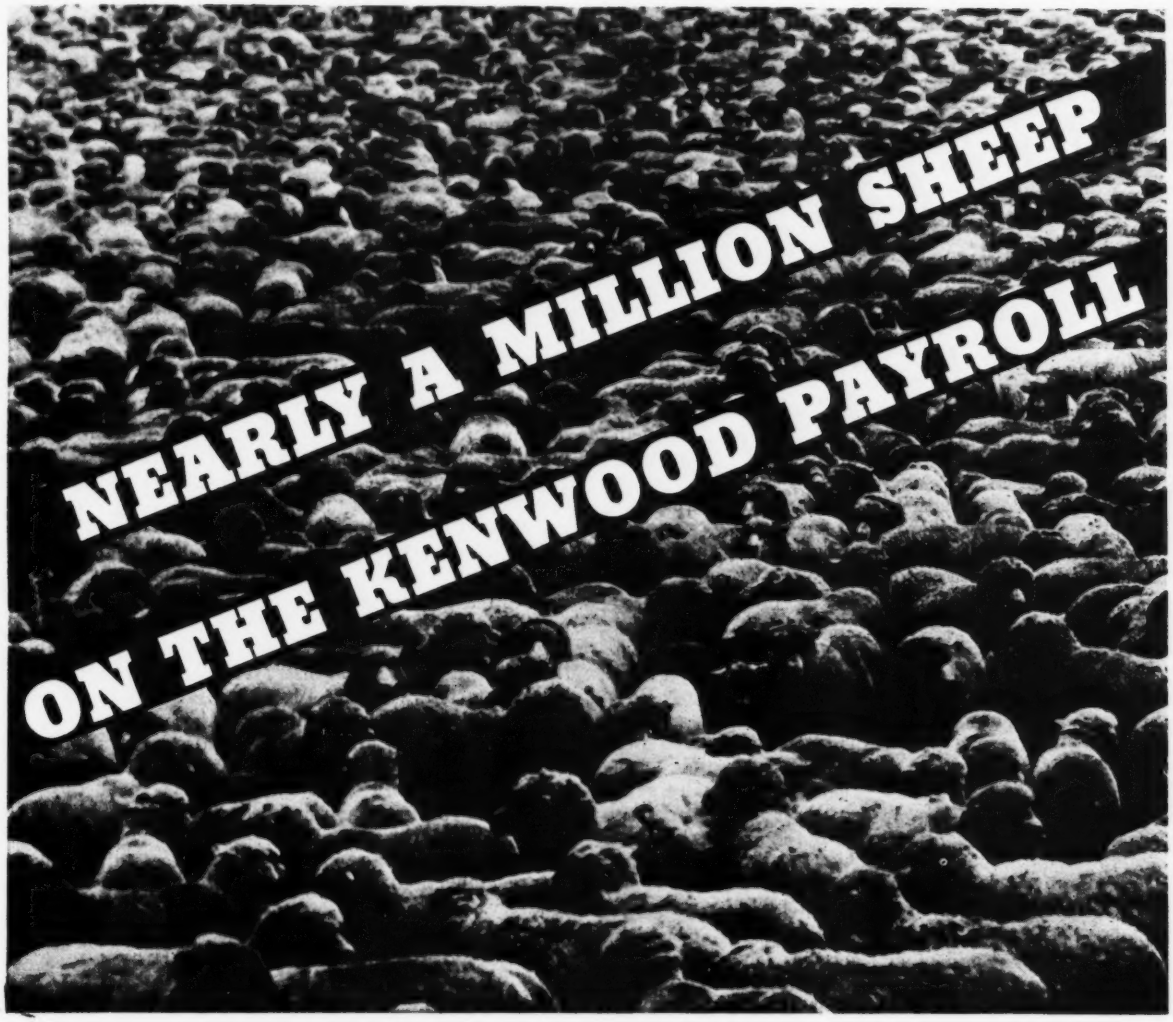
On Monday, August 16 at noonday luncheon, several of the paper trade golfers met with James F. Levens at the famous Winged Foot Golf Club at Mamaroneck, New York, for a two day tournament. Immediately following they played 18 holes of golf.

During the evening the usual indoor sports of bridge, poker and golf yarns prevailed. After an early breakfast 18 more holes were played. After luncheon some of the golfers again went out. It might be said that the 19th hole was not overlooked and was well attended, a good time being had by all.

The tournament was closed at a dinner Tuesday evening and suitable prizes were awarded to the following:— Walter Sisson, Low net for two days; George Sisson, Jr., Low gross for two days; Bill Raymond, Low net first day; John R. Miller, Low net second day.

This was the twelfth annual Geo. W. Millar & Company, Inc. golf tournament.

Those present were: Sidney L. Willson, Henry Savage, Oswald Marquardt, John R. Miller, Walter Sisson, George Sisson, Jr., John J. Dillon, Fred Burkhardt, Bill Raymond, George Lamonte, George Johnson and James F. Levens.



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Complain Against Corrugated Container

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 25, 1937—Corrugated Container Corporation, 230 Third avenue, Brooklyn, is respondent in a complaint issued by the Federal Trade Commission alleging use of unfair methods of competition in the sale of corrugated paper fiber boxes.

The case involves the company's alleged improper stamping of its products in violation of rules on file with the Interstate Commerce Commission relating to the construction requirements of corrugated paper boxes used in shipments by rail.

Eastern railroads, the complaint sets out, have a so-called official classification committee for maintaining tariffs, regulations and rules pertaining to the transportation of freight, and the Interstate Commerce Commission authorizes commodities to be shipped in corrugated paper fiber boxes at the same rate as commodities packed in wooden boxes if the former meet specific construction requirements. If these requirements are not met, there is a penalty of 20 per cent attached to rates for less than carload-lot shipments, and 10 per cent for carload lots.

The complaint alleges that one of the rules requires that on each corrugated box there shall be stamped an official certification consisting of a circle within a circle, containing the name and address of the manufacturer and the designation "Certificate of Box Maker" and there shall be set forth concisely a statement of resistance or bursting test in pounds per square inch, dimension limit in inches, and gross weight limit in pounds. It is said that shippers generally understand this custom of stamping corrugated paper fiber containers, and rely upon the representations made in the official certification of the manufacturer.

The respondent company, according to the complaint, places upon certain of its boxes a stamp which is not the usual and official certification required by the classification committee of railroad companies, but simulates it so closely in shape and appearance as to cause railroads and purchasers to accept such boxes in the erroneous belief that the simulated stamp is the official one. It is further alleged that shippers using the respondent company's improperly stamped boxes are thus enabled to obtain the advantage of a lower freight rate without authorization.

Violation of Section 5 of the Federal Trade Commission Act is alleged in the complaint, which allows the respondent company 20 days to file its answer.

Hampden Glazed Paper Strike Settled

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., August 24—The strike of the 180 employees of the Hampden Glazed Paper and Card Company was settled Thursday afternoon after the strikers had been out five weeks. The settlement was effected at a joint conference arranged by Adam Wilkinson representing paper mills in this section, Ralph N. Fowler, treasurer of the Company and Matthew Burns, president of the International Brotherhood of Papermakers. The strikers returned to their work Monday.

The employees are placed on a 44 hour week with the exception of the color and coating department which is placed upon a 45 hour week; and wages are increased five cents an hour for all employees.

Leaves Cohoes Envelope Co.

[FROM OUR REGULAR CORRESPONDENT]

COHOES, N. Y., August 23, 1937—E. A. Crawford for the past 12 years associated with the Cohoes Envelope company in an executive capacity, has resigned. Mr. Crawford has become widely known in the paper industry for his work in developing and improving the machinery used in the manufacture of the nationally known carrybags of the local concern.

He has become an outstanding figure in originating and developing attractive merchandise envelopes, wrapping paper and containers through introduction of printing and decorating processes which are said to be exclusive in the paper converting industry.

Among his most outstanding achievements have been those in the Aniline printing field in which he is probably the country's leading authority, having developed a complete printing process, including printing plates, printing inks known to be an almost exclusive development and so far as is known, the fastest producing and most accurate Aniline printing presses in the world.

Mr. Crawford began his business career as an accountant, then spent two years in the sales field, later took up engineering and specialized in progressive production, systematizing, and reorganizing paper bag and envelope plants. He had been affiliated with the bag and envelope industry for the past 18 years, having started with the Interstate Bag company of Walden, and later was affiliated with the Union Bag and Paper Corporation at its Hudson Falls plant where he was located for four years prior to coming to this city.

His future plans have not been learned. However, his broad experience and successful achievements in the bag and envelope field would indicate that any future connection will be in some branch of the paper industry.

Paper Bills Not Acted Upon

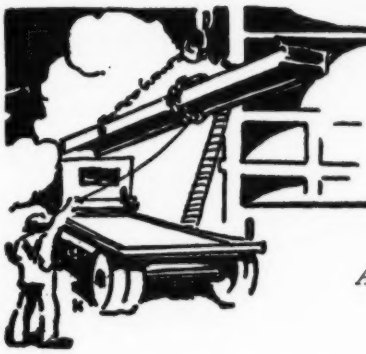
[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 25, 1937—A number of bills which were introduced during the First Session of the Seventy-First Congress of special interest to the paper industry were not acted upon. When the second session of this same Congress reconvenes in January these same bills will still be active. That is when one session ends, it does not mean that a bill "dies" as it does when a Congress ends.

In addition to the many stream and water pollution bills which were introduced at the last session, but on which no action was completed before adjournment, Representative Smith of Washington introduced a bill (H.R. 221) on January 5 which was referred to the Ways and Means Committee of the House "to prohibit the importation of pulpwood, wood pulp, or any wood susceptible of use in manufacturing paper." No action was taken on the bill by the committee.

Representative Smith of Washington, introduced a bill on January 5 "to raise revenue by taxing imported chemical wood pulp." The bill was referred to the House Ways and Means Committee but no action was taken.

On January 5 also, Delegate Dimond of Alaska introduced H.R. 1548 which was also referred to the House Ways and Means Committee to tax wood pulp and pulp wood. No action was taken by the committee.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Pulp and Paper Mills

Rust Co. To Build Fernandina Mill

PITTSBURGH, August 23, 1937—The Rust Engineering Company of Pittsburgh has been awarded a contract for the construction of a 180-ton paper mill at Fernandina, Florida, by the Fernandina Pulp and Paper Company. The mill, which will be built at a cost of about $6,000,000, will be the first plant of commercial size designed for the manufacture of pulp from southern woods by the use of the bleached sulphite process. The plant will be ready for operation about August 1, 1938, and will employ 400 men in addition to those engaged in wood cutting operations outside the plant.

The company was organized by interests associated with Rainier Pulp and Paper Company, Grays Harbor Pulp and Paper Company, and Olympic Forest Products Company.

The Rust Engineering Company recently completed a 200-ton paper mill for the Crossett Lumber Company, at Crossett, Ark., and is now engaged in the construction of a 200-ton paper mill for the Chesapeake-Camp Corporation at Franklin, Virginia.

To Concentrate Cellucotton Operations

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 23, 1937—Upon completion this fall of new buildings now under construction by the Kimberly-Clark Corporation at its Lakeview mill at Neenah, Wis., all of the Kotex and Kleenex conversion operations now conducted at the Badger-Globe division at Neenah will be transferred to the new plant, according to announcement of F. J. Sensenbrenner, president. The machinery is to be moved, and hereafter the company will be able to concentrate its cellucotton operations in the one plant. The vacated buildings will be used for warehousing purposes and additional office departments. The superstructure is practically completed on the last of the new manufacturing units at the Lakeview site, and they will be ready for occupancy later in the fall. The buildings are a part of the company's $4,000,000 expansion plan, previously announced in these columns.

Begin Work at Springhill Mill Site

SHREVEPORT, La., August 23, 1937—A crew of engineers and workers, totalling approximately 30, has started work at Springhill preparatory to construction of the $6,000,000 paper mill there by the Southern Kraft corporation, subsidiary of the International Paper company.

The men now are laying out ground lands and carrying on general surveying with indications that actual construction will start in about 30 days. About 2,000 men will be employed in construction and when the plant is in operation about 1,600 will be employed inside it and a similar number in the woods.

Eventual investment in the plant, which will be International Paper's largest, is expected to total $12,000,000.

Millers Falls Installs Power Apparatus

[FROM OUR REGULAR CORRESPONDENT]

MILLERS FALLS, Mass., August 24, 1937—The Millers Falls Paper Company is to improve its protection from flood waters at its upper dam and install additional power apparatus. John L. Bagg, president of the Company issued the following statement relative to the changes:

"The Millers Falls Paper Company is further insuring its upper dam against future flood conditions by providing an additional spill-way to relieve the excessive pressure at such times. In conjunction with this it is planned to install a single hydroelectric station of modern design that will augment the present water power output."

General Construction News

Port Edwards, Wis.—The Nekoosa-Edwards Paper Company, Inc., manufacturer of waxed and other processed paper stocks, wrapping papers, etc., has plans for new one-story addition to mill, to be equipped for expansion in bleach department. Work on superstructure is scheduled to begin soon. No estimate of cost has been announced.

Chicago, Ill.—The Illinois Shipping Container Company, 1520 West Pershing road, manufacturer of folding boxes and containers, solid fiber cases, etc., has plans for new addition to plant, to be one-story, estimated to cost close to $50,000, including equipment. It will be used primarily for storage and distribution. Bids have been asked on general contract and work is scheduled to be placed under way soon. A. Epstein, 2001 West Pershing road, Chicago, is architect and engineer.

Birmingham, Ala.—The Birmingham Paper Company, Fifth avenue South and Twenty-first street, manufacturer of commercial paper products, has begun superstructure for new three-story and basement plant addition, recently referred to in these columns, and is awarding miscellaneous contracts for completion. New unit will be 100 x 190 feet, and will be equipped for manufacture of corrugated paper boxes and containers, with paper-converting division for manufacture of commercial envelopes, school pads and kindred specialties. It will cost about $175,-

000, with equipment. An award for a sprinkler system installation will be made soon. The Southern Construction Company, 611-15 South Eleventh street, is general contractor. Charles H. McCauley, Jackson Building, is architect.

Los Angeles, Cal.—The Armstrong Cork Company, Lancaster, Pa., manufacturer of insulating board, flooring products, cork board specialties, etc., has concluded arrangements for purchase of a tract of about 26 acres of land near Atlantic boulevard, South Gate, Los Angeles, as site for new plant for Pacific Coast business. It will comprise several one and multi-story units, with power house, machine shop and other mechanical structures, estimated to cost close to $1,000,000. Project will be carried out by the Armstrong Cork Company of California, Inc., 1206 Maple avenue, Los Angeles, a subsidiary interest.

Tonawanda, N. Y.—Remington-Rand, Inc., 465 Washington street, has approved plans for new addition to Kardex plant on Main street, Tonawanda, used for the manufacture of cards and card systems, and other commercial paper products for office service. Superstructure will be placed under way at once. Equipment will be installed to increase the present paper-converting capacity by about 25 per cent. No estimate of cost has been announced. S. M. Knapp is vice-president.

Brooklyn, N. Y.—The Paper Novelty Manufacturing Company, 225 East Thirty-sixth street, New York, manufacturer of paper specialties for domestic and other service, paper novelties, etc., has concluded arrangements for long-term lease of building at 505 Carroll street, Brooklyn, extending through to President street, owned by Continental Baking Company. The structure totals about 100,000 square feet of floor space, and will be used by leasing company for new plant, doubling the size of present plant at first noted address, which will be removed to new location in near future. Additional equipment will be installed for large increased capacity.

Jacksonville, Fla.—The National Container Corporation, Review and Borden avenues, Long Island City, New York, manufacturer of corrugated boxes and containers, has authorized installation of a new branch container manufacturing plant in conjunction with new kraft pulp and paper mill at Jacksonville, previously referred to in these columns. A one-story building will be arranged for the container fabricating unit, which will cost over $100,000, including equipment. Machinery awards will be placed at once. This will make the fifth such plant of the company, the others being located at first noted address, Bradford and Philadelphia, Pa. Work on the main units of new pulp and paper mill is under way by the Merritt-Chapman & Scott Corporation, 17 Battery place, New York, which recently secured the erection contract. Mill will be equipped for a capacity of about 200 tons of paper per day, and has been designed to furnish requirements for the five converting plants noted; of these, the new Jacksonville unit will have a rated annual output of about 20,000 tons per annum and will give employment to about 150 persons in different departments. The pulp and paper mill is scheduled for completion early in 1938 and will represent an investment of $3,260,000. Samuel Kipnis is president. Johnson & Wierk, New York are engineers.

Laurel, Miss.—The Masonite Corporation, manufacturer of insulating board and other wood pulp products, has concluded arrangements for the purchase of tract of about 70,000 acres of timberland in the vicinity of its Laurel mill, for additional source of pulpwood. Company also has taken an option on another tract of 125,000 acres of similar property in the immediate vicinity. It is proposed to develop the first noted tract for pulpwood service at early date.

Clinton, Iowa—E. I. duPont deNemours & Co., duPont Building, Wilmington, Del., Cellophane Division, has concluded negotiations for purchase of tract of about 400 acres of land at Clinton, as site for new mill, for which plans will be prepared at once. It will comprise several one and multi-story units, with power house, pumping station and other mechanical departments, and will be equipped for large cellophane output. It is reported to cost over $1,500,000, with machinery. It is understood that work will begin in the fall. This will be the eighth such mill of the company, and the first plant west of the Mississippi River.

Cincinnati, Ohio—Fire recently in the storage and distributing yard of the local plant of the Container Corporation of America, 5500 Eastern avenue, caused a loss in storage and handling facilities estimated at $45,000.

Toronto, Ont.—Reg. N. Boxer Company, Ltd., Birmingham street, near Seventh street, New Toronto, manufacturer of wall paper products, has plans for one-story addition to mill. Bids have been asked on general contract and erection is scheduled to begin soon. Cost reported over $45,000, with equipment.

Kenora, Ont.—The Kenora Paper Mills, Ltd., manufacturer of newsprint, a subsidiary of the Minnesota & Ontario Paper Company, Builders' Exchange Building, Minneapolis, Minn., has contracted with the Winnipeg Electric Company, Winnipeg, Man., for increased power supply at mill, to be available early in 1938, covering regular requirement of about 5,050-horsepower at all times, and additional power as may be available up to 20,000-horsepower.

Nipigon, Ont.—The Lake Sulphite Pulp Company, Ltd., Port Arthur, Ont., organized early this year, has active work in progress on new bleached sulphite pulp mill in vicinity of Nipigon, Thunder Bay district, previously referred to in these columns. Plant will comprise several large units, to be equipped for an initial output of 200 tons of pulp per day, later to be increased to about twice this amount. New mill will represent an investment of about $5,000,000 and will be ready for service in 1938. The company is said to have contracted for 80 per cent of the output for the first year. Company has completed financing for the project, and will operate with a capital of 300,000 shares of common stock, of which about 150,000 are now outstanding, and $5,000,000 in bonds, of which $3,000,000 will be outstanding. J. Stadler, 1117 St. Catherine street West, Montreal, Que., is engineer for mill.

New Companies, Etc.

Chelsea, Mass.—P. Shaffer & Co., Inc., 246 Second street, has been incorporated with capital of 100 shares of stock, no par value, to deal in paper products of various kinds. Philip W. Shaffer is president and treasurer.

New York, N. Y.—The Coast-to-Coast Envelope Company, Inc., has been chartered with capital of $20,000, to manufacture and deal in envelopes and kindred paper products. New company is represented by Martin J. Forgang, 165 Broadway, New York, attorney.

Chicago, Ill.—The National Manifold Products

Company, 711 South Dearborn street, has been incorporated with capital of 200 shares of stock, no par value, to deal in carbon and other paper stocks, etc. New company will take over and succeed to the organization of same name, address noted. The incorporators include V. J. Crane and A. M. Fay.

New York, N. Y.—The Midtown Paper Stock Corporation has been chartered with capital of 100 shares of stock, no par value, to deal in paper products of various kinds. New company is represented by Samuel L. Marcus, 277 Broadway, New York, attorney.

Walpole, Mass.—Norfolk Waste Paper Company, Inc., South street, has been incorporated with capital of 100 shares of stock, no par value, to deal in waste paper goods. The incorporators include P. W. Shaffer and Abraham W. Weener.

Chicago, Ill.—Lakeview Waste Paper Corporation, 910 South Michigan avenue, has been formed with capital of $100,000, to deal in waste paper products. The incorporators include Alvin E. Sundroff and E. C. Purcell.

H. H. Latimer Goes With Champion

DAYTON, Ohio, August 23, 1937—Homer H. Latimer, superintendent of the Beckett Paper Company, Hamilton, for 18 years, resigned August 14 and is beginning his duties this week with the Champion Paper and Fibre Company in Hamilton, in a newly-created position, in a production capacity in this large plant.

Mr. Latimer announced his acceptance of a new position with an expression of regret that the years of pleasant associations in the Beckett service have come to an end, and likewise dealt with his anticipation of new associations, new experiences and new work, which he said he was certain would prove to be happy and pleasurable.

With the announcement of Mr. Latimer's decision, the following statement was made by Guy H. Beckett, vice-president of the Beckett Paper Company:

"It is with deep regret that the directors of the Beckett Paper Company accept the resignation of Homer H. Latimer. For 18 years Mr. Latimer has been the general superintendent of the Beckett Paper Company, but is now leaving to associate himself in a production capacity with a large mill, the Champion Paper and Fibre Company.

"In justice to himself and to his future, Mr. Latimer could not well afford to pass by this opportunity to enter the larger production field, although he will be sadly missed by his close friends and associates here at Beckett's.

"Homer has built for himself a wide circle of friends among paper merchants as well as among paper mills, and has achieved an outstanding reputation as a fine paper-maker, as an executive here in our mill, and as an upright and honest citizen in Hamilton.

"Our very best wishes for success in his new venture go with him and we also congratulate our good friends and neighbors at Champion in their good fortune in securing his services.

"Val Friedrich, assistant to Mr. Latimer for the last 14 years, has been appointed general superintendent as successor to Mr. Latimer. We are fortunate to have available a man trained by and closely associated with Mr. Latimer and therefore well-equipped to take his place."

Ward Paper Co. in Production

Rehabilitation of the old Grandfather Falls Paper Mill, Merrill, Wis., which was recently taken over by the Ward Paper Company, has been completed and the plant is now in full commercial production. The entire mill has been almost completely reconstructed.

The paper machine is a 130 inch Beloit Fourdrinier

PRESIDENT WARD, MILL EXECUTIVES AND FRIENDS

(Left to right)—G. H. Suhs, Chief Engineer; Carl Simon, Assistant Superintendent; J. M. Ward, President; Hoke Martin, Paper Makers Chemical Co.; Tom Gillespie, Pennsylvania Salt Manufacturing Co.; and A. M. Vanderberg, Superintendent.

with 28 driers and one calender stack. The wet end has been completely rebuilt with the latest type Beloit shake.

The picture presented shows President Ward, together with some of the paper mill executives and business friends.

Spaces Assigned for N.P.T.A. Exhibit

At the drawing for room space at headquarters of the National Paper Trade Association, Tuesday, August 17, the attached reservations for exhibitors were announced.

As indicated on the attached the fifth and sixth floors of the Stevens Hotel will be required to house the exhibits and present indications are that this will be one of the outstanding features of the fall convention.

EXHIBIT SPACE ASSIGNMENTS

Firm Name	Room (s) Assigned
Orchard Paper Company	533 and 534
Central Paper Company, Menasha	509
Central Paper Company, Muskegon	500 and 501
Crystal Tissue Company	605-A and 606-A
Detroit Sulphite Pulp and Paper Company	519-A and 520-A
A. P. W. Paper Company	609-A and 612-A
Kalamazoo Vegetable Parchment Company	556
Lily Tulip Cup Corporation	605 and 606
Hoberg Paper Mills, Inc.	600 and 601
Hooven & Allison Company	557
Wolf Brothers	532
Bay West Paper Company	504, 505 and 507
Diana Manufacturing Company	512 and 513
White-Washburne Company, Inc.	528-A and 530-A
Nekoosa-Edwards Paper Company	613 and 656
Nation Wide Papers, Inc.	515-A and 517-A
Sealright Company, Inc.	512-A and 513-A
January & Wood Company	502
Brown Company	618 and 619
Sherman Paper Products Corporation	556-A and 557-A
Racquette River Paper Company	524-A
Brower Paper Company	509-A
Midland Paper Products, Inc.	539
A. C. Hummel Company	504-A
A. W. Mendenhall Company	613-A and 615-A
Minerva Wax Paper Company	551-A
Brown-Bridge Mills, Inc.	505-A and 507-A
Dixie-Vortex Company	609 and 612
Stevens & Thompson Paper Company	521-A and 523-A
Frank J. Hayman, Inc.	545
Mono Service Company	501-A and 502-A
Paperlynen Company	607
Lincoln Bag Company	602 and 604
Loroco Industries	553
American Paper Merchant	526-A
American Paper Goods Company	520
Kirch Trumbull Corp.	607-A
Superior Lawrence Bag Company	601-A and 602-A

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COMING EVENTS IN THE PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY—Fall Convention, DeSoto Hotel, Savannah, Ga., Oct. 18-20, 1937.

NEW ENGLAND SECTION, Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Nonotuck Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION, Technical Association of the Pulp and Paper Industry—Fourth Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION, Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION, Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park-American Hotel, Kalamazoo, Mich.

THE SOUTH'S FUTURE IN PAPER

The sales of the combined pulp and paper mills of the South *should* in 1938 bring into that section better than $150,000,000, according to James H. Allen, vice president in charge of the Savannah plant of the Union Bag and Paper Corporation. Mr. Allen also believes that the South will within the next thirty years supply at least 60 per cent of the nation's requirements for pulp and paper.

In a paper presented before the Georgia Agricultural Society Mr. Allen pointed out that wood fiber is much more easily and cheaply raised than cotton. "If we lose our cotton business to foreign nations," he asserted, "we shall have a business that will be just as large, if not larger, growing out of our pine trees, and we shall have a larger market. Today, the consumer's demand in the United States for pulp and paper exceeds 13,000,000 tons annually. In fiber weight this is equivalent to 52,000,000 bales of cotton. The South is starting right in the processing of wood into pulp and paper. The textile mills, comparatively speaking, will not be in the North. The finished plants for pulp will be in the South. It will be a four to five stage industrial converting proposition. First, we shall raise the trees; second, we shall produce the logs or wood; third, we will make pulp; fourth, we will make paper or board or rayon; fifth, we shall make bags or boxes or undershirts, etc., and so on."

Mr. Allen gave a picture of how he thought 100,000,000 acres of good cut-over pine lands in the South would create wealth perpetually under forest management. He advised a 50-year program on the land, valued at $500,000,000, forestry, fire protection and taxes in 50 years to cost $1,600,000,000, and replanting to cost $250,000,000.

"The day of ruthless competition caused by overproduction," Mr. Allen believes, "is apt never to return again into our commerce. We have learned better than that and we learned through that great suicide era known as our most recent depression. As the chiselers drove the price down in order to continue to operate, men lost their jobs through economy drives; merchants went broke because they sold the merchandise below cost; banks went into bankruptcy because those who were fired on account of the economy drives either drew out their money or used up their bank accounts for living; in fact, fear on the account of the chiselers caused more men to commit suicide during the chiseling period than any other period in the nation's history. The cheaper commodities were sold, the more numerous became the idle ranks, and less became the consumer's demand; and, in fact, the records disclose that the chiselers had both industry and agriculture in this nation just ready to go over Niagara Falls, because neither the farmers nor industry had the legal right or the economic knowledge to restrain trade to such a point that they, the farmer and industrialist, could get above cost for the products they were selling. These causes have now been removed. Industrialists have been enlightened. The farmer has had corrective factors introduced into his production and marketing. Both the farmer and industrialist have learned that by producing less than their capacity they will spend less money in doing it, and that through curtailment they will get a great deal more for a portion of their capacity than for 100 per cent of their capacity.

"The NRA simply tried to insure labor and industry against selling goods to the consumer below cost. The mistake that was made in the NRA was that an insurance question was involved and not a legal or governmental vehicle.

"If over-production comes again in industry, we shall find that each industry will insure its component industries against loss of the fixed charges, when the consumers' demand requires curtailment of production. In our plant at Savannah, if an accident to our turbine or a boiler or a motor should close our plant down, we have an insurance policy that not only pays us our fixed charges while the plant is idle, but it also pays us our profit. It is very easy to stretch this policy to include the cause of a shut-down to be 'lack of profitable orders to run.' We shall see in the future standby capacity in every industry, and we shall see insurance exchanges that will pay an industry its

fixed charges with a reasonable return upon the invested capital, in the event the sales department fails to get profitable orders by refusing to chisel.

The paper industry, not only in the United States, but of the world, is heading to the Southland, where crops of wood fiber may be raised definitely in twenty-year-crop cycles. A twenty-year wood fiber crop will be definitely planted within the minds of timber growers, as is the annual crops of cotton, beets, onions, etc. The climate and the soil of the South, and the species of the trees raised in the South, are so blended in a friendly relationship that wood fiber is produced more quickly and more abundantly here than at any other location upon this globe. In addition to raising timber rapidly, all of the other economies surrounding the manufacture of timber into pulp and paper are natural economies and need not be forced. The pulp and paper industry under the NRA code tried to thwart the will of nature through using the influence of the industry against expansion Southward. The industry, itself, was swept South by the call of nature, even against their will and their own efforts to restrain the movement. The concourse of nature's flow of things cannot be changed by men. The trend may be retarded somewhat, but not stopped. The evidence is before the industry now in this year 1937, when 10 per cent of the production of the industry is moving where it should be—South."

Paper and Oil to Lead in Louisiana

ALBANY, N. Y., August 23, 1937—A large group of Louisiana business and municipal leaders visited here this week on a "Good Will" tour. They had several ideas about business boosting and believe that new industry should be given a break. J. E. Clayton, manager of the Louisiana Business Men's Association, said that since the law was passed granting tax exemptions for a ten-year period over $25,000,000 of new industrial investment has been attracted to that state. He named a new $10,000,000 paper mill near Shreveport, La., and $5,000,000 in scattered enterprises developed since the law was made effective. He declared that it is a sound principle and that the state will be repaid in the long run through the increased business done. Paper and oil production are the coming industries of Louisiana, according to Mr. Clayton. He expressed the opinion that it might be possible to ship cotton, sulphur, oil, paper and other products from New Orleans direct to this city by water.

Get Patent on Bleaching Process

GLENS FALLS, N. Y., August 23, 1937—John Campbell, L. A. Rolleston and George A. Smith have been granted a patent on a continuous bleaching process and apparatus for cellulosic material which is said to be different in several ways from any device of the same class previously patented. The number of ways in which the invention differs from other patented devices was determined by patent examiners. Application for patent was filed in 1932 and the rights have been disposed of to the International Paper Company.

Production Ratio Report

The statistics are based upon paper production reports to the American Paper and Pulp Association:

COMPARATIVE MONTHLY SUMMARIES

Months	1937	1936	1935	1934
January	90.3% (c)	76.1%	65.8%	.....
February	90.1% (c)	77.9%	70.0%	.....
March	90.3% (c)	76.0%	70.5%	.....
April	92.1% (c)	82.3%	70.0%	.....
May	90.6% (c)	81.6%	69.4%	.....
June	87.4% (c)	80.7%	72.3%	.....
July	82.4% (c)	77.3%	64.9%	.....
August	....	81.5%	70.9%	.....
September	.....	80.5%	71.9%	58.2%
October	.....	87.6%	75.6%	64.7%
November	.....	82.0%	75.3%	61.7%
December	.....	85.9%	71.2%	59.6%
Year Average	.....	81.3%	70.5%	.....
Year to Date First 32 weeks	88.6% (c)	78.9%	69.0%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1937		CORRESPONDING WEEKS, 1936	
*July 10	70.2%	July 11	75.6%
*July 17	88.3%	July 18	80.0%
*July 24	86.4%	July 25	80.3%
*July 31	84.5%	August 1	81.9%
*August 7	83.1%	August 8	80.2%
*August 14	78.1%	August 15	80.9%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting, Current Weeks					
Ratio Limits	July 10, 1937	July 17, 1937	July 24, 1937	July 31, 1937	Aug. 7, 1937	Aug. 14, 1937
0% to 50%	84	50	57	70	62	60
51% to 100%	229	260	254	242	235	153
Total Mills Reporting	313	310	311	312	297	213

* Subject to revision until all reports are received.
(c) Basic capacity data have been adjusted to correspond with ratings reported on January 4, 1937 Machine Improvement Survey.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours," were as follows:

Mos.	1937	1936	1935	1934	Mos.	1937	1936	1935	1934
Jan.	80% (e)	61%	61%	....	July	67% (e)	69%	59%	....
Feb.	86% (e)	67%	67%	....	Aug.	....	75%	65%	....
Mar.	87% (e)	68%	67%	....	Sept.	....	76%	69%	62%
Apr.	89% (e)	70%	61%	....	Oct.	....	82%	76%	63%
May	86% (e)	68%	61%	....	Nov.	....	79%	70%	56%
June	75% (e)	68%	65%	....	Dec.	....	74%	60%	52%

Week ending Aug. 7, 1937—73% Week end. Aug. 14, 1937—75%

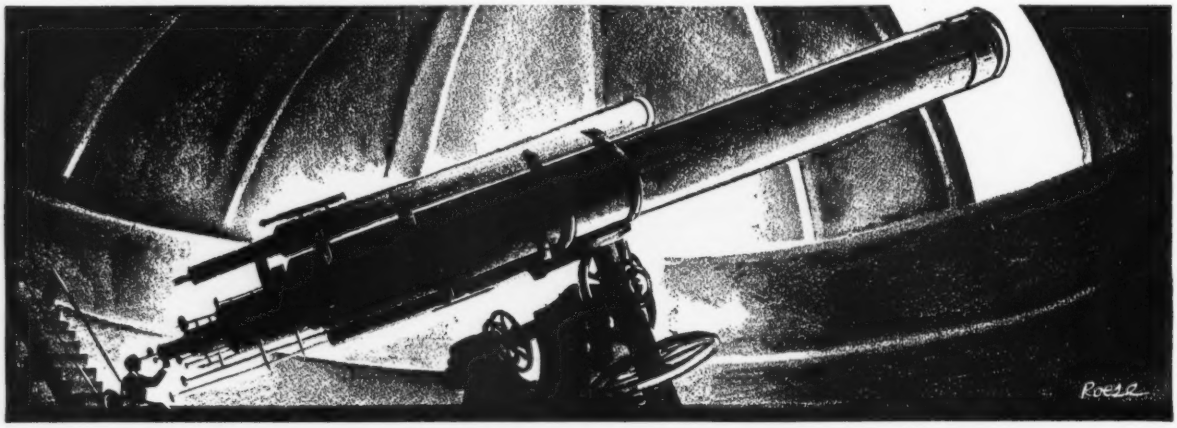
(e) Basic figures revised to include new members of the National Paperboard Association.

To Start Iroquois Mill Sept. 1

[FROM OUR REGULAR CORRESPONDENT]

THOMSON, N. Y., August 23, 1937—Preparations for a resumption of operations by the newly organized Iroquois Paper Company at the old mill of the Iroquois Pulp and Paper Company are nearing completion and plans call for starting production of paper September 1. A portion of the machinery will be started then and the remainder as business warrants. A consignment of pulpwood for the plant has already been received and grinders will probably be operated within a few days. The new concern will produce hanging paper and employ about 150 persons when running full blast. Deeds to the property recently recorded with the county clerk show the transfer of the property from the First Trust Company of Albany, trustee of the bankrupt Iroquois Pulp and Paper Company, to the Iroquois Paper Company, of New York. These deeds indicate that the transfer is subject to two mortgages which do not exceed $245,000. The reopening is cheerful news to residents of this village and forecasts a return of prosperity to the whole section.

BETTER METHODS . . . WIDER HORIZONS



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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Instrumentation Studies. XIX

Photoelectric Device for the Objective Measurement of Light Scattered by Small Particles, and Surface Fuzz of Paper

By The Staff of the Institute of Paper Chemistry

Theory of the Method

Small particles of matter scatter light in all directions. When the particles are much smaller than the wavelength of light, the way in which light is scattered is accurately known; this is the case of Rayleigh scattering, in which the greatest intensity of light scattered is in the forward and backward directions (relative to the direction of the incident light), and light at the violet end of the spectrum is much more strongly scattered than is light at the red end (Tyndall effect). When the particle size is of the order of the wavelength of light and larger, relatively less light is scattered in the backward direction, and more in the forward direction. Thus, if a fiber projecting from paper is present in a beam of light, most of the light scattered by the fiber will be found in a small range of angles with the beam. In general, when a fiber is viewed with the unaided eye, it is seen by light leaving the fiber at an appreciable angle with the beam. If it were possible to view the fiber with the eye in line with the beam and see *only* the light scattered by the fiber, the fiber would appear very brightly illumined. This type of viewing, with the eye or photocell, is closely approximated with the optical arrangement shown in Figure 1.

Light from a source S is rendered parallel by a lens L_1. The beam thus formed is brought to a focus by means of a second lens, L_2, upon a small disk D which is just large enough to block all the light in the parallel beam. A small particle P present in the beam and near the focal plane of the lens L_2 will scatter light in all directions and a large fraction of the scattered light will fall upon the lens L_2. The scattered light collected by the lens L_2 will be rendered nearly parallel by the lens and only a very small fraction of the collected light will be stopped by the disk D. The scattered light stopped by the disk D is confined in a small cone of half-angle (r/f) radians, where r is the radius of the disk and f is the focal length of the lens. Consequently, all of the scattered light which leaves the particle between this small cone and the large cone determined by the diameter of the lens L_2 is available for measurement. The high efficiency of this system makes possible the use of ordinary equipment for the measurement of the intensity of light scattered from a single fiber.

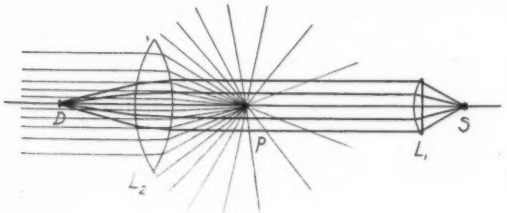


FIG. 1.

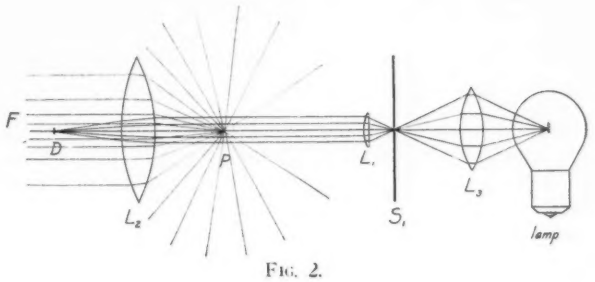


FIG. 2.

Apparatus for Measurement of Light Scattered by Colloids, Smoke and Dust Particles, etc.

An optical arrangement suitable for the measurement of light scattered by small particles is shown in Fig. 2. The source, S, of Fig. 1 has been replaced by a screen, S_1, having a small aperture. By means of the condensing lens, L_3, the image of the filament of a small tungsten filament lamp is caused to fall on the small aperture of the screen, S_1. Thus one has a fair approximation to a point source at S_1; this is a matter of importance, since light originating in points (e.g., the glass envelope of the lamp or the filament supports) away from the filament and falling upon the lens, L_2, may not be stopped by the disk, D.

The lens, L_1, is small, having a focal length of approximately 10 mm., in order that the beam be small. It is important that the beam be small for the following reasons: first, if the beam had a large cross section, the spot at D would be large due to spherical aberration of the lens, L_2, and the amount of scattered light intercepted by the disk, D, would be unnecessarily large; second, for a given light flux in the beam, the intensity of light falling on particles at P is inversely proportional to the area of the beam, so that a small beam means high light intensity; third, relatively more of the light scattered by dust particles on lenses L_1, and L_2 will be intercepted by the disk when the beam is small than when large.

Viewing of the scattering particles can be accomplished by placing either a white screen or the eye at F. When a white screen was used, the position of particles at P was

varied to give sharp images on the screen. Viewed in this manner, images seen by scattered light were very striking. Images of fibers protruding from the torn edge of a sheet of black paper, and images of fine wires, hairs, and large dust particles could be seen brightly illuminated on the screen. Illumination of the screen due to a small amount of smoke in the beam was surprisingly high. Clear tap water in a clean glass cell gave rise to a fairly high level of illumination; in this case light was scattered by small particles in the water and on the glass of the cell. When viewing is direct, with the eye at F, all of the above effects were very pronounced. Dust particles drifting through the beam at the proper distance from the collecting lens could be seen as bright points of light.

When a "Photronic" cell connected to a galvanometer was placed at F, all of the effects described in the foregoing paragraph were found to be easily measurable. The larger effects gave rise to photocurrents which could be measured with an ordinary microammeter; when a shunted Leeds and Northrup Type R galvanometer was used, it was possible to measure with fair accuracy the light scattered from a single fiber projecting from a sheet of paper. Care was exercised in this experiment in seeing that only the fiber, and not the paper surface, was present in the beam, since light specularly reflected from the paper surface would be collected by the lens L_2 and projected on the photocell.

The arrangement described in this section is very well adapted to the measurement of turbidity of liquids of low turbidity, and, possibly, to the measurement of the size of filler particles in suspension. Modification is necessary, however, if surface fuzz of paper is to be measured, since, for proper measurement, the surface of the paper should be in the beam of light and if the surface is in the beam, small-angle reflected light will mask the weaker scattered light. Now the reflected light travels upward, and falls on only the upper half of the collecting lens. Consequently, if the upper half of the collecting lens is covered, no specularly reflected light can arrive at the photocell. This feature has been included in the design of the instrument described in the following section.

Photoelectric Device for Measuring Surface Fuzz of Paper

A diagram of an instrument recently constructed at the Institute for objective measurement of surface fuzz of paper is given in Fig. 3. Light from a small motion picture projection lamp (4 volts, 0.75 ampere) is rendered parallel by a small lens of focal length 12.8 mm. The filament of the lamp is a straight helix 2 mm. long by 0.2 mm. diameter; due to the small diameter of the filament, the beam is ribbon-like. A smooth-edged, rectangular slit in the screen A serves to define sharply the limits of the beam, and the screen stops stray light. At P, the paper sample, which is cut in a strip 0.5 inch wide, passes over one of the edges of a fixed steel half-rod. The upper half of the lens-

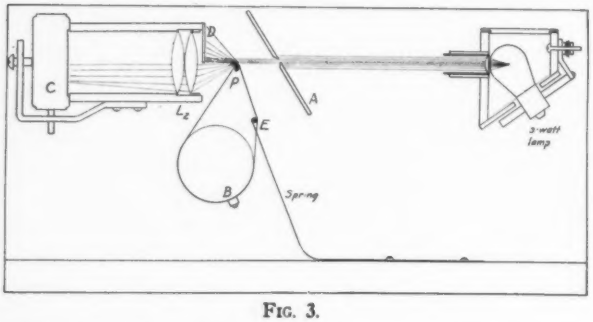


FIG. 3.

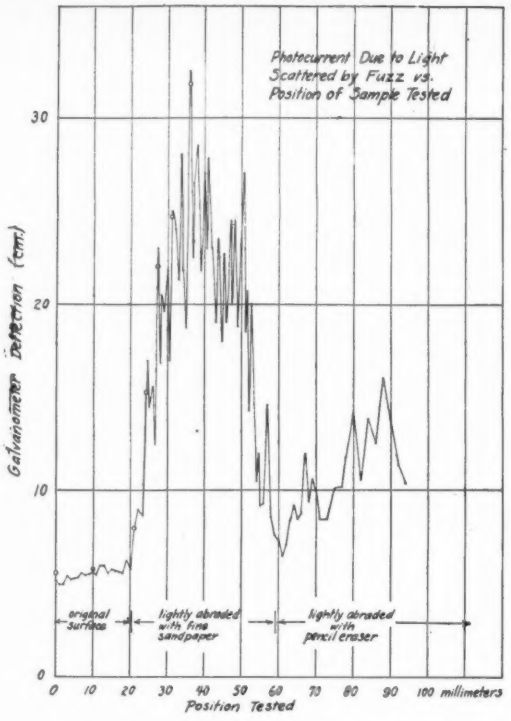

Photocurrent Due to Light Scattered by Fuzz vs. Position of Sample Tested
Galvanometer Deflection (cm.)
0
10
20
30
original surface
lightly abraded with fine sandpaper
lightly abraded with pencil eraser
0 10 20 30 40 50 60 70 80 90 100 millimeters
Position Tested

FIG. 4.

pair L_2 is covered by a black half-disk D to eliminate reflected light from the sample. Scattered light from the sample is collected by the lower half of the lens-pair and is projected on a "Photronic" cell C. Two lenses are used in order to increase the solid angle in which scattered light is collected.

The direct beam is intercepted by the half-disk D at a point near the bottom edge of the half-disk. The adjustment of the position of the area on the half-disk struck by the beam must be done carefully, since the position of the bottom edge relative to the beam determines the minimum angle of scattered light collected. The adjustment is carried out by raising the lenses and half-disk relative to the beam until light in the beam is at the point of skipping past the edge.

The flat face of the half-rod at P is nearly vertical so that the paper sample comes down sharply on the left to the drum B, about which the sample passes. The top edge of the half-rod is rounded and polished in order that the structure of the sample is not damaged when the paper is pulled over the edge.

The two ends of the strip are clamped to the drum at B, and the strip is kept tight by a smooth rod E which bears against the strip. The strip is moved by turning a knob which is directly connected to the drum. A pointer on the knob moves over a dial which gives directly the distance in millimeters between a fiducial mark on the strip and the portion of the paper in the light beam. The fiducial mark is drawn across the strip where the strip bends over the upper edge of the half rod when the dial is set at zero. For convenience, we may call the dial reading "position tested."

Electrical connections to the lamp and photocell are made through binding posts in the instrument's panel. All interior parts are painted with flat black to minimize the effects of any stray light, and a close-fitting wooden housing makes the instrument light-tight.

When photocurrent is plotted against the position of the sample, a curve having a large number of peaks results. The peaks are definitely due to projecting tufts of fibers or to isolated individual fibers. Fig. 4 shows the results of many measurements taken over several centimeters of a strip of paper which had been lightly abraded with fine sandpaper over a part of its length, lightly abraded by a pencil eraser over another part of its length, while the remaining parts of the strip were left untouched. By visual examination it was found that one or more fibers extended into the beam when the photocurrent rose to a high value.

It is difficult to estimate from measurements the order of error involved in the method, since degree of fuzz cannot be reproduced, and the fuzz on the same sample changes with handling. There is, however, reason to believe that the instrumental error is small; the alignment of the optical system is constant, and maintenance of constant voltage across the lamp insures constant light intensity during a series of measurements. After the data for the graph of Fig. 4 were obtained, several check measurements, represented by circles, were made. It will be seen by inspection of Fig. 4 that the reproducibility of the measurements was good.

If the lamp must be replaced, or if, for some reason, the optical system is thrown out of proper alignment, a standard light scatterer must be used to bring the sensitivity of the device to the proper value. A standard of fuzzy material would seem to be not only highly undesirable, but unnecessary. After careful consideration of a number of theoretical and practical factors, it was concluded that a fine filament of metal or glass would constitute a suitable standard. The filament would be mounted near the ends of a metal U-piece; the ends of the U would be notched so that they could be placed over the top edge of the half-round rod at *P* (Fig. 3). This would place the filament at a definite, small distance above the edge of the half-rod. With the filament in place, adjustments could be made to bring the photocurrent increment due to scattered light to a predetermined standard value.

Examination can now be given to the possible modes of interpreting the photocurrent-position graphs. A complete graph describes adequately the nature of the fuzz; i.e., it gives the degree of fuzz at each line across the sample strip. However, the advantages of a single fuzz number obtained from the graph (or from direct measurement) are obvious. Of the few possible indices which suggest themselves, the simplest would be the quotient of the average photocurrent due to fuzz divided by the photocurrent due to a standard light scatterer of the sort described above. The average photocurrent may be obtained from the graph (by use of a planimeter), or, if a galvanometer of long period is used, the average current may be obtained by oscillating the sample back and forth over the half-rod at *P*. The latter procedure would, of course, be far less time-consuming than the former; it is felt, however, that the time required to obtain photocurrent-position data is justified by the complete picture of fuzz given by the graph.

The device may be used to evaluate the surface fuzz of paper as it comes off the machine, or the degree of fuzz produced by erasure.

Summary

An efficient optical arrangement for the measurement of light scattered by small particles has been developed at The Institute of Paper Chemistry. This photoelectric device is sufficiently sensitive to measure quantitatively the light scattered from an isolated fiber. Application may be made to the measurement of turbidity of liquids of very low turbidity.

A new instrument specifically designed for the objective measurement of surface fuzz of papers has recently been constructed at The Institute, and has been found very effective. The instrument is described, and a sample of results obtained with it is given.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Machinery

Supercalender Roll. Archibald C. Lade, assignor to B. F. Perkins and Son, Inc., U. S. pat. 2,063,608, (Dec. 8, 1936).—The backing roll of a supercalender is built up of laminations of paper containing rubber, gutta percha, etc.—A.P.-C.

Calendering, Drying, or Like Treatment of Materials. W. W. Spooner. U. S. pat. 2,065,032 (Dec. 22, 1936).—One surface of the paper is applied to a heated metal surface and high velocity jets of a heated drying fluid (steam, air) are applied obliquely to the other side of the paper. The drying fluid is preferably circulated in a closed path—A.P.-C.

Means for Aligning Calender Rolls. Harrison R. Williams. U. S. pat. 2,054,530 (Sept. 15, 1936).—The basic idea back of the invention is to provide for the establishment of what may be called a base or reference line or plane so that the distance therefrom of opposite ends of a roll will determine whether or not the roll is properly aligned with respect to a standard direction. This base for reference may be established by using the bottom roll of a stack to establish a vertical base plane at a fixed distance for the axis of the roll.—A.P.-C.

Rubber-Covered Suction Press Roll. Sherman B. Ward, assignor to Stowe-Woodward, Inc. U. S. pat. 2,066,752 (Jan. 5, 1937).—The perforated metal shell is covered with unvulcanized rubber, a template with perforations corresponding to those of the shell is placed over the rubber, pegs are driven from the outside through the perforations in the shell, the rubber is vulcanized and the pegs and template are removed.—A.P.-C.

Calendering. James Strachan. Paper-Maker 91: TS65-66 (May 1, 1936).—A brief discussion of the effects of calendering and of the extent to which they are severally produced by the different kinds of calendering. —A.P.-C.

Improvement to Machines for Producing Paper or Board Insheets. Cie. Lnicrusta Walton et Loreid

Réunis. Fr. pat. 805,310.—In a wet machine, the felt is replaced by an endless woven wire or textile fabric.—A.P.-C.

Shake of the Wire on Fourdrinier Machines. K. Schonemann. Zellstoff u. Papier 16, no. 12:583-587 (Dec., 1936); 17, no. 1:13-17 (Jan., 1937).—The article discusses the theoretical fundamentals of shake constructions, the efficiency of which is influenced by several factors, such as the nature of the raw materials, their treatment, the thickness of the sheet required, the consistency of the pulp suspension, the head of the wire, the speed of the machine, etc. Hence, amount of shake and stroke should be adjustable to varying conditions, especially on machines making different grades of paper. The principle of different shake systems, their advantages and limitations are discussed: *a*) the shake of the breast roll only, *b*) the shake of the breast roll and 8-10 table rolls, *c*) the shake of the larger part of the table rolls (more or less obsolete construction) *d*) the McDonnell shake, according to which the breast roll and one special table roll in the "forming zone" are vibrated, *e*) shake of the wire part in sections, and *f*) several miscellaneous constructions with varying speeds and irregular strokes. No entirely satisfactory system has yet been developed; further cooperation between machine designer and paper maker are essential for solving the problem.—C. J. W.

The Fourdrinier Wire. H. H. Parrett. World's Paper Trade Rev. 106: 1713-1716, 1754-1759, 1796, 1798, 1836, 1838, 1880, 1882, 1922 (Nov. 27, Dev. 4, 11, 1936); Paper-Maker 92: TS165-167 (Nov., 1936); TS180-182 (Dec., 1936); 93: No. 1 (Jan., 1937).—A discussion of the effects of the composition and structure of the metal used on the properties of fourdrinier wires, and of advisability and possibly of developing new alloys to meet the increasingly exacting requirements resulting from the ever increasing widths and speeds of paper machines.—A.P.-C.

Apparatus for the Manufacture of Paper. E. Alexander Charlton, assignor to International Paper Co., U. S. pat. 2,062,445 (Dec. 1, 1936).—The fourdrinier wire is passed through a vat where a layer of fiber is deposited on the wire. One or more additional layers of stock are thereafter deposited on the initially formed web by means of one or more nozzles or spray devices located above the fourdrinier wire.—A.P.-C.

Wire Cloth for Paper Machines. Louis N. Weber, assignor to Appleton Wire Works, Inc. U. S. pat. 2,062,773 (Dec. 1, 1936).—A fourdrinier wire is woven with solid warp and hollow weft wires so as to permit increased crimping of the latter.—A.P.-C.

Paper Machine. Gerould T. Lane and Wendell Butterfield, assignors to Eastman Kodak Co. U. S. pat. 2,066,570 (Jan. 5, 1937).—The wire on which the web is formed is wrapped around a considerable portion of a cylinder partly immersed in the flow box. The speed of flow of the stock is maintained at approximately that of the making wire. The stock in the flow box is divided into two streams in both of which means are provided to prevent settling of the fibers.—A.P.-C.

Woven Wire Belt for Paper Machines. Harry G. Specht, assignor to Eastwood-Neally Corp. U. S. pat. 2,066,369 (Jan. 5, 1937).—In a fourdrinier wire having at regular intervals reinforcing warp wires of greater tensile strength and hardness (and consequently less elongation) than the remainder of the warp wires, the differential characteristics of the two alloys are compensated for by weaving the higher-strength, lower-elongation alloys with long knuckles at the bottom and short knuckles at the top, and the lower-strength alloy with short knuckles at both bottom and top.—A.P.-C.

Drying

Drying of Raw Material for Paper Making, Such As Cellulose, Wood Pulp, or the Like. H. Hoenig and Maschinenfabrik Imperial G.m.b.H. Brit. pat. 451,163 (Oct. 3, 1935).—Air is passed through webs of pulp via definite perforations which are formed, e.g., by a spiked roll.—A.P.-C.

Method of Drying Pulp. O. Merckens. Belg. pat. 412,747 (Jan. 31, 1936)—The active surface of the air-blowing device is displaced for a predetermined period with the material to be dried, the device consisting of a perforated roll.—A.P.-C.

Suction Apparatus for Paper Machines. Thames Board Mills, Ltd., and William G. Fiske. Brit. pat. 450,112 (July 10, 1936).—Water expressed at the nip of couch—or wet-presses of paper or board machines is withdrawn through one or more apertures in the toe of an adjustable suction mouth, e.g., of metal of vulcanized rubber having a slotted or serrated edge at the toe.—A.P.-C.

Paper Machine Control. Guild Wünsch, assignor to Askania-Werke A. G. Vormals Central Werkstatt Dessau und Carl Bamberg-Friedenau. U. S. pat. 2,062,922 (Dec. 1, 1936).—The idea is to maintain and automatically control the ratio between steam flow and the temperature or humidity of the paper using a governing force which is proportional to the algebraic sum of a deviation plus the rate of deviation, to readjust proportioning control means operating normally in response to changes in temperature only. The resistance elements of a thermometer (which is part of a wheatstone's bridge) delivers current to a galvanometer which governs a fluid pressure in response to changes in the electric current representing temperature in such a manner as to balance the resulting force against changes. The fluid pressure used is applied to a diaphragm in such a manner as to balance the resulting force against the steam pressure.—A.P.-C.

Paper and Printer

Relation of Paper to Offset Lithography. H. H. Hanson. National Lithographer 44, no. 1:22, 24 (Jan., 1937).—The article describes briefly how paper is made on the Fourdrinier machine and the factors which influence its structure. Reference is made to the importance of correct conditioning of paper and the resulting troubles when the sheet is not in moisture equilibrium with the surrounding atmosphere, such as curl, misregister, and wavy edges. Some of the reasons for two-sided conditions of the different sides of the paper are discussed including the tendency for different fiber orientation on the top and wire side of the web as well as varying amounts of filler and rosin being retained on either side due to the drainage of water and suction applied. This two-sidedness may have a bearing on the printing quality of the paper.—C.J.W.

Paper Troubles in the Printery. Bernard Stroulger. British Printer 49, no. 292:202-204 (Jan., 1937).—The author discusses major and minor points which may cause faults in the printing room. He starts with suitability of paper to job and purpose, and then treats the subject according to the actual stages of progress in the printing room, covering receipt and examination of supply, storing, cutting and printing, stocking printed sheets, trimming, binding, parcelling, and delivery. Suggestions are made for obtaining moderate air control in cases where the cost of air conditioning is prohibitive.—C.J.W.

Color Contrast in Printing. James Strachan. Paper-Maker 92:TS161 (Nov. 2, 1936).—A very brief discussion of the effects of contrasts in color printing.—A.P.-C.

Rubber Design Rolls. J. B. Shaughnessy. Paper Mill 59, No. 47:18, 20 (Nov. 21, 1936); Paper Trade J. 103, No. 24:29 (Dec. 10, 1936).—A brief discussion of their merits.—A.P.-C.

The Sveen Method for Increasing the Retention of Fillers and Fibers*

By P. M. Loddengaard[1]

Abstract

A weak solution of bone or hide glue or some other animal glue left to mature at low temperature for about 24 hours and thereafter added to suspensions of fibers and/or fillers in which a small amount of alum is present, is an extremely powerful flocculating agent. Added to the stuff some 30 to 60 seconds before it arrives at the apron it affects a very considerable improvement of the retention on the wire, resulting in a reduction of the solids in the white water of 50 per cent on an average. This improvement in the retention also extends to rosin size, pigments, and dye stuffs, etc.

The same glue solution has a corresponding flocculating effect on the remaining solids in the white water thereby facilitating the recovery of fibers and fillers in all types of savealls. This effect is especially marked on savealls of the flotation and sedimentation type. A simple and effective flotation recovery method is described in addition—working under atmospheric pressure and recovering 95 to 99 per cent at a concentration of 2 to 3 per cent.

In the manufacture of paper and board there are many losses which occur in the process, but the most important loss is undoubtedly that which occurs in the white water from the wire and moulds on the paper machines. In an attempt to salvage some of these potential losses, savealls and recovery systems of one kind or another can be utilized. These recovery systems, however, do not start operation until the stuff has passed the wire. They are corrective methods, i. e. they do not begin to function until the error has been committed. The measure of their success is very much dependent on the effectiveness of the preceding steps in the manufacture. Although by no means borne out by usual mill practice, it would seem quite natural when attempting to prevent a loss, primarily to anticipate the occurrence and use some preventive method thereby reducing it as far as possible, and as a secondary step, apply a corrective method, which then stands a much better chance to succeed.

In this connection a "preventive method" is meant to be one by which it is possible to improve the retention on the wire of the paper machine without effecting any changes in the quality of the paper being manufactured at the time or in the prevailing conditions at the various stages of manufacture. Such methods are rather rare, and although the Sveen retention method, which is one of the topics of this treatise, answers quite generally to the demands outlined, it is, of course, no panacea.

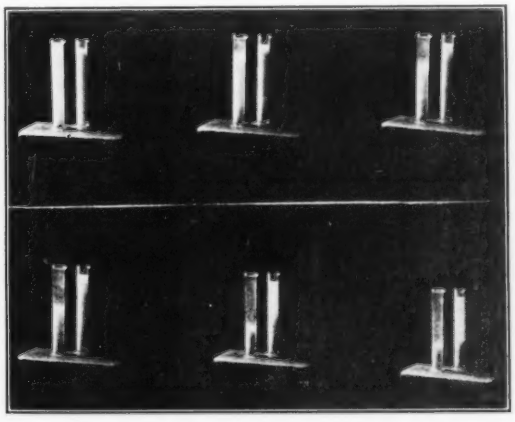


FIG. 1.

Very little is known to us as to the mechanism of retention. The phenomenon is evidently of a rather complex nature, being partly mechanical and partly chemical and colloidal. It is not possible to explain the differences in retention under varying conditions by looking at the problem from one point of view only.

The mechanical side of retention refers to the web which forms on the wire and through which the entire volume of white water must pass, leaving the suspended matter in or on the web. Not quite the entire volume of water has to pass the web because a short interval of time elapses from the moment when the stuff leaves the apron until the web starts to form. Different experiments and tests have also borne out that just at this point the difficulties encountered when trying to improve the retention are the greatest. Before this web or fiber mat has taken a definite form the suspended solids may pass unhindered through the wire, but with the closing of the web an increasing filtration takes place. This is shown by countless tests of total solids in the white water at different points along the wire. The amount is gradually decreased from the amount found under the first tray until the last tray is reached just before the suction boxes. It is quite evident and is one of the factors which should cause a comparatively low content of solids in the white water from heavy papers. It is reasonable then to assume that as soon as a web of sufficient density has been formed on the wire, the amount of solids which pass from the upper side of the paper through the filter web is rapidly decreasing. When, nevertheless, fairly large amounts of solids are found in the white water from the suction boxes and/or the suction couches, this apparently means that fine fibers, (fibrillas), fillers, etc., which have stuck in the capillary channels in the paper web, are torn loose again and that also some of the material on the wire side of the sheet is removed by the comparatively violent action of the suction at this point of the machine. This implies that if the fibers and fillers had a tendency to flocculate or agglomerate from the very moment when the stuff leaves the apron, the filtering mat described above would start to form much more quickly and if this agglomerating action could be made to last and also maintained as the sheet proceeds down the wire, the improvement in the retention would also be very noticeable at the suction part of the wet end.

Factors Affecting Retention

It is however, not correct to talk about the retention of solids only. The retention of colloidal matter is equally important. For instance, boiled or water soluble starches, size, certain pigments, dye stuffs, etc. In these cases the retention evidently has nothing to do with the mechanical

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 22-25, 1937.

[1] Bulkley-Dunton Pulp Co., Inc., New York, N. Y.

side of the problem but depends on some kind of chemical or colloidal precipitation or adsorption.

In *The Paper Trade Journal* of September 26th, 1935, William R. Willets has published a paper on "Factors Affecting Retention". In summing up he concentrates the results of his experiments as follows:

1. Retention is improved by the addition of alum up to about 3 per cent. Further addition is followed by a small decrease in the retention. The rosin size present improves upon these results.

2. Starches in various forms have but a small effect on retention and do not always improve upon same.

3. Hydration resulting from beating causes a marked increase in a retention.

4. Retention increases with increasing basis weights.

5. Increased temperature causes increased retention. The effect is small.

6. Increased dilution causes increased retention. The effect is small.

7. Particle size has small bearing on retention as compared to the factors mentioned above.

The facts given in Dr. Willets' Paper evidently result from some very thorough and intelligent research work and quite a few of his results may be considered as conclusive. There are, of course, some remarks to make: Dr. Willets has for instance made more reference to the percentages of alum added than to the pH. In the experiments dealing with the effect of dilution he has, for instance, allowed the pH to rise from 4.8 to 6.2 during the series, keeping the percentage of alum added constant. Seeing that the effect of alum is fairly considerable on the retention, such changes do of course offset the results. The effect of increasing temperature on the improvement of the retention is interesting even if it is rather difficult to apply it in mill practice. At the present moment extensive experiments are being carried out at The Royal Technical University in Stockholm which will complete the data that Willets supplied and will bring some new points of view to light. When these investigations are completed, the results will be made available to the membership of the TAPPI. The carrying out of these experiments was prompted by the wide adoption of the Sveen Method among the European paper mills. This method has undoubtedly given fresh actuality to the retention problem and has made it possible to obtain retention

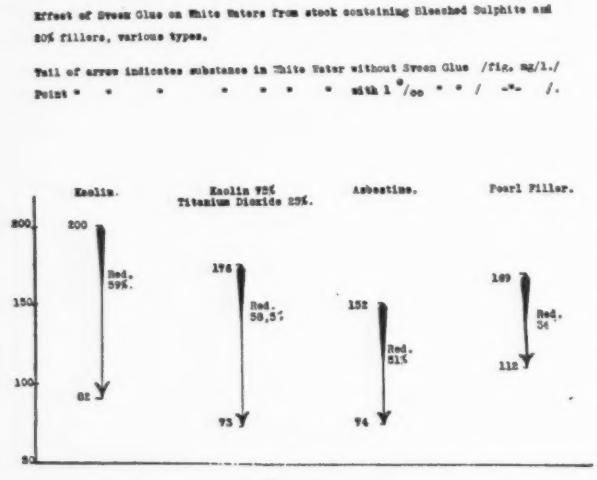


FIG. 2.

mg/liter = milligrams per liter = parts per million.
0.1 per cent Sveen glue = about 2 pounds glue per ton of paper.
200 mg/liter = 1¾ pounds per 1,000 gallons.

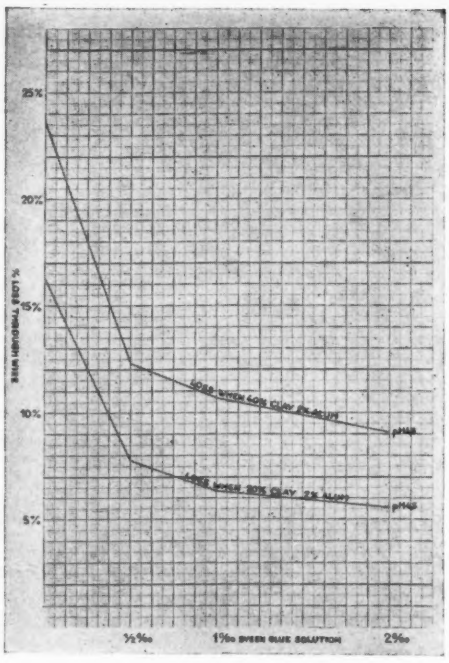


FIG. 3.

Use of Different Amounts of Sveen Glue

0.05 per cent Sveen glue = about 1 pound glue per ton paper
0.1 per cent Sveen glue = about 2 pounds glue per ton paper
0.2 per cent Sveen glue = about 4 pounds glue per ton paper

results which some years ago would have been entirely out of the question.

Materials Used in Sveen Method

The material employed by the Sveen retention method is a very weak bone or hide glue solution which is left to mature at low temperature in a concentration of about 1 per cent, after a correction of the pH by alum. During this maturing period the glue particles undergo a very marked change, the Brownian movements increase tremendously and the fresh hydrophile glue particle changes to hydrophobe. This solution has a very marked effect on suspensions of fibers, fillers, pigments and dye stuffs, rosin size, etc. If a small amount of alum is present, a very minute amount of the Sveen solution will cause the solids in suspension to flocculate, leaving the water between the agglomerations almost crystal clear. If this solution is added to the stuff between the machine chest and the wire and well mixed with the stuff, the retention of fillers, fibers, rosin size, etc., will improve to a large degree.

One of the important characteristics of the Sveen process is that the solution should not be added to the beaters or to any point further away from the machine that the sand traps. Another point of interest is that the amount of glue used is almost homeopathically small, usually from 1 to 3 pounds per ton of finished paper or about 0.1 per cent. What has been said will make it clear that both the application, the idea and the action of the method are entirely different from the time-honored practice of adding comparatively large amounts of animal glue to the beaters with small effect.

Six Pairs of Glass Cylinders, Fig. 1, showing the effect of settling in white water with (left) and without (right) Sveen glue. Sveen glue improves on settling and clarification. Samples taken simultaneously from the wire tray of a machine running with a book paper containing about 20 per cent ash.

These tests have been made in a sheet mould and give a fairly good idea of the retention and the improvement hereof under certain conditions. Please note that the effect is largest on china clay because china clay without Sveen glue passes more freely through the wire than the other fillers tried and that replacing some china clay with titanium dioxide improves in retention. The retention of asbestine, as known, is in itself quite good and is nicely improved upon by Sveen and that the pearl filler is not so readily affected as the other fillers tried. (Probably because of a larger solubility). Experiments are being continued and we cannot discuss the above results further.

Fig. 3 shows the results of a laboratory test showing the relative effect of Sveen on stocks containing various amounts of china clay. 3 different quantities of Sveen Glue have been used, viz: 0.05, 0.1 and 0.2 per cent on dry stock—*Sveen glue* not Sveen *glue solution* as the Fig. 3 shows. The curves plotted give a fairly good idea also of what happens on the paper machines.

Machine Application

It is rather interesting to note that the results arrived at in actual mill practice are quite often even better than these laboratory results. On a medium sized paper machine a test can be carried through in ten minutes or less because of the effect of the glue solution being instanteneous. At the very moment when the stuff carrying an admixture of the Sveen solution passes the apron the improved flocculation will cause the web to form quicker and denser on the wire, more solids and colloids will be retained, resulting in an increasing substance and also a higher percentage of ash in the paper. The white water from the wire and from the suction boxes will immediately carry less solids and it will be much easier to separate these solids from the water. If the backwater system is entirely open, it would be possible to immediately obtain big savings and maintain them indefinitely, because the bulk of what formerly passed through the wire would no longer go astray. If the backwater system is entirely closed and the Sveen solution is added, the immediate increase in weight and ash would be greater than in the case of an open system. This will be due to the presence of large amounts of filler and fiber built up in the system, which will gradually be reduced by being returned to and retained in the sheet. The rate at which it is returned will vary with the type of circulation system employed but a point will finally be reached where there is no more of the old material to be circulated. The retention, however, will be higher and remain constant from that point on. Weight and ash variations will be considerably lessened.

We know most mills operate at neither of these two extremes but are somewhere in between, and it is therefore possible, when the Sveen method is put into operation, to effect a direct saving by adding less fillers, size, etc., to the beater. The importance of this saving would be in direct proportion to the losses of raw materials suffered by the mill during the manufacturing process.

TABLE I

The figures indicate pounds per 1,000 gallons unless otherwise stated

Bleached Sulphite Book Paper. 25x38"—60-lbs.—500 s.

	Backwater		Suction Box Water	
	Fibers	Ash	Fibers	Ash
11 o'clock—Regular run	15.70	63.70	7.75	41.00
11:10 o'clock—With Sveen glue	11.00	25.50	2.85	9.40
Difference	4.70	36.20	4.90	31.60
Reduction in per cent	30	57	63	77.5

Match Label with 40 per cent Groundwood. 25x38"—30-lbs.—500 s.

	Backwater					
	1st Wiretray		2nd Wiretray		3rd Wiretray	
	Fibers	Ash	Fibers	Ash	Fibers	Ash
Regular run	18.15	12.40	15.40	12.00	13.80	10.90
With Sveen glue	15.80	6.70	13.20	5.70	10.60	4.46
Difference	2.35	5.70	2.20	6.30	3.20	6.44
Reduction in per cent	12.8	46	14.2	52	23.5	59

Woodcontaining Offset. 25x38"—41-lbs.—500 s.

	Backwater		Suction Box Water	
	Fibers	Ash	Fibers	Ash
Regular run	14.90	14.50	3.57	5.70
With Sveen glue	12.70	10.60	2.14	2.41
Difference	2.20	3.90	1.43	3.29
Reduction in per cent	15	27.5	40	56

Rotogravure. 50/50 Sulphite and Groundwood. 20% Ash. 25x38"—52-lbs.—500 s.

	Backwater				Suction Box Water	
	1st Wiretray		2nd Wiretray			
	Fibers	Ash	Fibers	Ash	Fibers	Ash
Regular run	18.70	43.50	21.40	45.60	6.06	21.50
With Sveen glue	16.80	23.80	18.00	29.20	2.10	6.50
Difference	1.90	19.70	3.40	16.40	3.96	15.00
Reduction in per cent	11	45	16	36	65	70

Table I shows the results obtained during short tests in various mills. You will see that the reduction of solids in the white water from different parts of the wet end of the machine varies from 11 to 77 per cent and further, that the improvement in the retention increases from the breast roll on and reaches a maximum at the suction boxes. The figures show also that the reduction of fillers is more considerable than the reduction of the fibers in the white water. If the Sveen method is employed on a paper containing no fillers at all, the retaining action of the solution on the fibers is smaller than when fillers are present. This seems to suggest that the agglomerating (cementing) effect on fibers only is less marked than that on fillers and fibers together.

Four Tests on Paper Machines

Table I shows the immediate effect on white waters when adding Sveen glue. The reduction figures are considerable. If the paper machines had been adjusted to render the normal paper weight and the normal ash contents these reduction figures would have been more remarkable.

From Table II you will be able to see the effect of the Sveen method before and after the adjustment of the machine to meet the new conditions caused by the intro-

TABLE II

All figures indicate lbs. per 1,000 gals. unless otherwise stated.
Line 1 shows normal conditions before adding Sveen glue.
Line 2 shows conditions after adding Sveen glue.
Line 3 shows conditions, still with Sveen glue but after adjustment of the machine to render the normal basis weight and the normal ash content of the paper.
Bleached Sulphite Book Papers. 25x38"—67-lbs.—500 s.
Speed of Machine: 240 feet per minute.
Ash Content of Paper: 1, 10 per cent.
Ash Content of Paper: 2 and 3, 19 per cent.

	Backwater											
	1st Wiretray			2nd Wiretray			3rd Wiretray			Suction Boxes		
	Total	Fibers	Clay	Total	Fibers	Clay	Total	Fibers	Clay	Total	Fibers	Clay
1./ Regular line	41.60	15.20	26.50	39.50	14.50	24.50	30.50	10.30	20.00	17.80	5.32	12.50
2./ With Sveen glue	24.60	10.80	13.70	19.50	9.10	9.60	16.60	8.60	8.00	6.25	3.21	3.05
3./ With Sveen glue after adjustment of machine	14.05	9.00	5.05	9.90	6.80	3.20	9.00	6.10	2.88	2.40	1.18	1.23
Per cent reduction 1 to 2	41	29	48.5	51	36	60.5	45	16.5	60	65	40.5	72.5
Per cent reduction 1 to 3	65	40	80.5	74.5	53.5	88	70	40.5	86	86.5	80	83

duction of the method. At first the glue solution was added during the regular run on the machine, resulting in a marked increase in the ash content of the sheet and a cut of about 50 per cent of the solids in the white water. The basis weight of the sheet was considerably increased and it was therefore necessary to shut off stock to compensate for these new conditions. After the readjustment of the machine the paper was back to the original quality again while the solids in the white water went down another 50 per cent resulting in a total reduction of some 75 per cent.

It will be noted that the reduction from one to two is quite considerable, but reduction from one to three much larger.

From Fig. 4 you will be able to gather some further details. The test was made in a large Saxonian book paper mill. The fillers in this case as in the other test referred to were china clay. The results of the test were very good, the reduction of 98 per cent of the solids in the suction box water being quite remarkable. As you know, the normal retention will vary from machine to machine with the same stock as well as differ with various types of paper on the same machine.

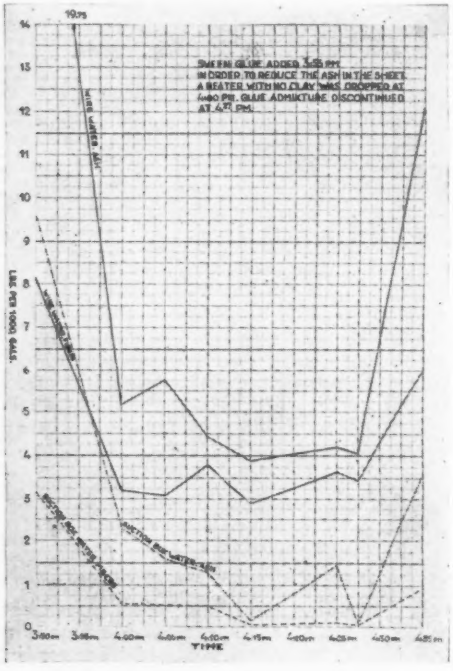


FIG. 4.

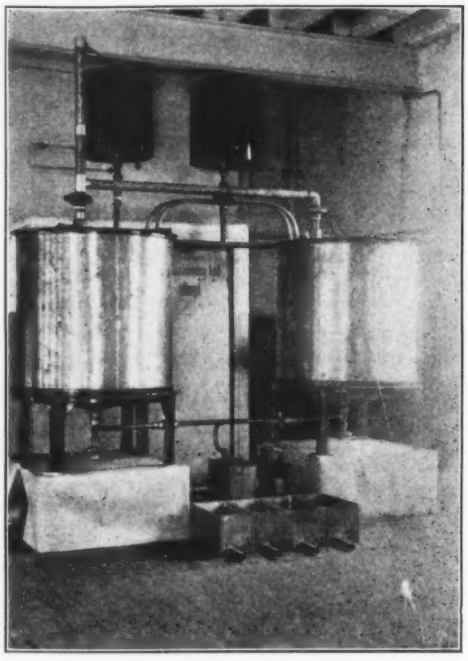


FIG. 5.

In Fig. 4 you can easily see when Sveen Glue has been added 3:53 P. M. and when the test was discontinued 4:27 P. M. The effect on suction box water ash and fibers are considerable. Please note that the amount of solids does not raise to the same high level after the test as before, as naturally during the test the circulating water has been deprived of much of the solids. While not indicated here,

TABLE IV

White Book Paper, No. 2 Grade. Speed of machine, 450 feet per minute.

Time		Basis Weight 45x68 inches— 00 pounds— 500 sheets	Clay charge beater pounds	Ash per cent	pH
1:00 P.M.	Regular run	113	1050	18.23	4.7
2:00 P.M.	Regular run	112	1050	20.15	4.7
2:50 P.M.	Beater charge of clay reduced 1st beater dropped		850		
3:25 P.M.	Sveen solution added (2 lbs. glue per ton of paper)				
3:40 P.M.	With Sveen weight corrected	113	850	24.66	4.8
4:10 P.M.	With Sveen	112½	850	24.31	5.0
5:00 P.M.	With Sveen	113	850	24.00	
6:00 P.M.	With Sveen	112	850	23.75	5.8
7:00 P.M.	With Sveen pH corrected	111½	850	22.43	5.8
8:00 P.M.	With Sveen	113½	850	22.25	5.0
9:00 P.M.	With Sveen	114	850	24.15	4.7
10:00 P.M.	With Sveen	113	850	24.6	4.7
11:00 P.M.	With Sveen	114	850	24.4	4.7
12:00 P.M.	With Sveen	115	850	25.23	4.7

TABLE III

Cream Wove Book. 100 per cent Soda Pulp.

Time		Basis Weight 35x46 inches 102/500 pounds	Bulk 4 sheets 1/1000 inch	Opacity per cent	Ash per cent	White Water: Pounds per 1,000 gals.	White Water: Per Cent Filler	White Water: Per Cent Fiber
3:50	Regular run	102¾	26	93.0	16.30			
4:03	With Sveen	111¾	27.5	...	22.00			
4:08	Weight corrected at headbox.							
4:13	With Sveen	107¼	27	...	20.75			
4:21	With Sveen correct substana	102	25.5	95.0	20.25			
3:50	Regular Run							
					Tray water.....	26.44	72.31	27.69
					Suction boxes.....	26.05	79.24	20.76
4:05	With Sveen							
					Tray water.....	19.33	67.59	32.41
					Suction boxes.....	12.00	76.22	23.78
4:22	With Sveen							
					Tray water.....	12.48	86.13	13.87
					Suction boxes.....	10.22	75.03	25.97

Reduction from 3:50 to 4:05—
Tray water 27%
Suction boxes 54%
Reduction from 3:50 to 4:21—
Tray water 49%
Suction boxes 60.5%
pH 4.5 throughout the run.

the ash in a given sheet of paper will drop to whatever figure was shown before the introduction of the Sveen solution. This can be proven by checking the ash content of paper before adding solution and then while solution is being run into the stock and then again when the solution is shut off and the weight allowed to return to normal. This can be done in a 10 or 15 minute period.

Table III shows the effect of Sveen glue on a paper machine as well as the further effect of adjusting the paper machine to obtain a paper of the original basis weight and the original ash content of paper.

Table IV shows a test on an actual paper machine. Please note that the clay charge per beater is reduced from 1050 to 850 pounds without the ash in the paper going down.

Fig. 5 shows an old style Sveen plant assembled in the factory. At the top is a glue melting tank on the left and a rosin size tank on the right. Below are two copper tanks for the maturing of the glue solution and on the floor a metering apparatus and four dilution boxes of an old design, now vastly improved on.

As has been previously mentioned the flocculating effect is not limited to the stuff on the wire but continues its action in the white water as well. This will cause the solids to separate more quickly from the water. In savealls of the settling type (conical savealls, etc.) the settling will proceed at a much faster rate, while in savealls of the flotation type where air is mixed with the white water, the flotation will proceed faster and also be more complete. The Sveen method will thus have an improving effect on the effectiveness of all savealls and recovery systems. In a recent case there was a conical saveall which did not function properly. By means of an addition of a small quantity of Sveen solution it was possible to reduce the content of solids in the effluent to about 1/7th of the original figures or to 0.15 pound per thousand gallons. Table V shows figures indicating the improvement in efficiencies of savealls. Two tests were on rotating cylinders using soda pulp for sweetener and others, as shown in Fig. 6 on sedimentation type savealls. The effect on rotating filters is not quite so marked although you will find much less filler particles in the effluent. As an aid to savealls of the flotation types the Sveen Method is unparalleled. The method has recently been applied to several flotation savealls of the vacuum type which were not running properly. The Sveen glue did, however, remedy this in a most satisfactory manner.

TABLE V.—TABLET PAPER—CLAY FILLED

All figures to show pounds per thousand gallons of solids in white water.

	1st Tray	2nd Tray	Suction Box	Saveall Intake	Saveall Effluent
Normal Conditions					
No Sveen solution.....	11.1	12.9	6	14.2	.37
With Sveen solution.....	7.6	9.9	2.59	9.8	.185
Reduction, per cent.....	31	23	57	31	50

Paper Weight:
Before solution—41.5 pounds—25x38—500
After solution—43.6 pounds—25x38—500

Ash of Paper:
at 1:02 P.M.—3.08%
1:07 P.M.—4.54%

Ash after solution shut off—3 per cent at 1:38 P.M.; 3 per cent at 2:00 P.M.

TEST ON COATED BOOK PAPER—25x38—43/500

Containing Calcium Carbonate Filler.
Figures show total solids in white water in pounds per 1,000 gallons.

	1st Tray	2nd Tray	Suction Box	Saveall Feed	Saveall Effluent
Normal Conditions					
No Sveen solution.....	31.6	30.3	33.9	46.3*	1.44
After Sveen solution added	22.7	20.4	16.2	16.6*	.74
Reduction, per cent.....	31	33	52	64	50

Opacity—Before 93.9; after 94.6.

* Soda pulp sweetener used.

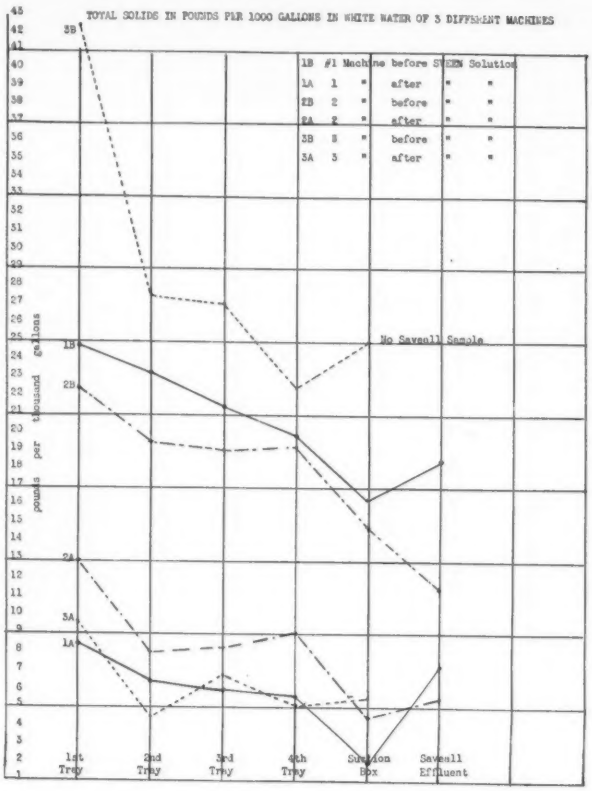

TOTAL SOLIDS IN POUNDS PER 1000 GALLONS IN WHITE WATER OF 3 DIFFERENT MACHINES
1B #1 Machine before SVEEN Solution
1A 1 " after " "
2B 2 " before " "
2A 2 " after " "
3B 3 " before " "
3A 3 " after " "
No Saveall Sample
pounds per thousand gallons
1st Tray
2nd Tray
3rd Tray
4th Tray
Suction Box
Saveall Effluent

FIG. 6.

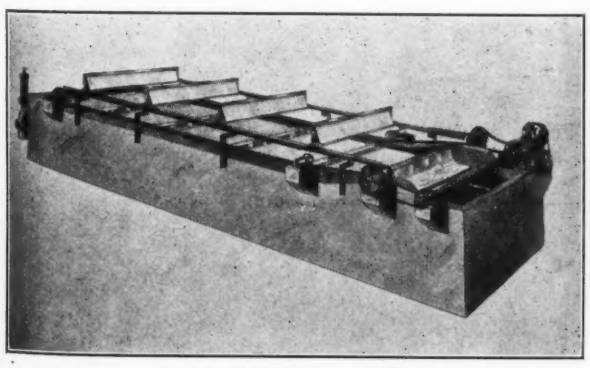


FIG. 7.

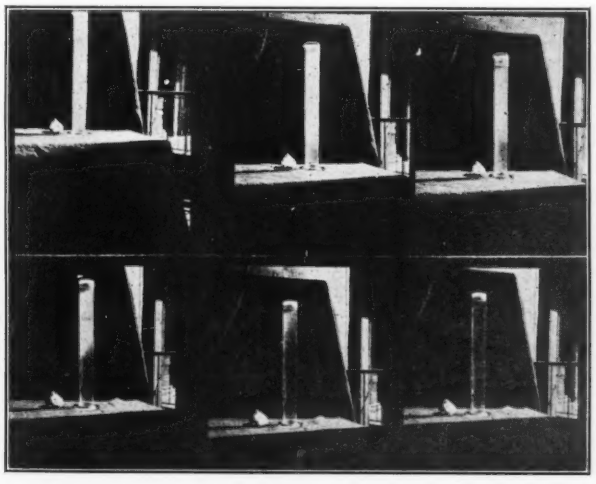


FIG. 8.

The Sveen retention method is particularly closely connected to the Sveen-Pedersen flotation recovery process, working under atmospheric pressure, in fact, it forms an integral part of that system. In that saveall the back water to be treated is conveyed from the sump at the machine to the recovery tank by means of a centrifugal pump. In this pump some air is introduced and mixed thoroughly in the water. A pressure of 30 to 40 pounds is maintained in the pipe, leading from the pump to the saveall. Just before entering the latter this pressure is released. At the same point a minute quantity of the Sveen solution is added to the white water which then flows into an open rectangular tank of moderate size. As soon as the pressure is released, microscopic air bubbles will appear in the water, affix themselves to the agglomeration of fiber and filler and lift them to the surface where they are skimmed off and returned to the stuff chest or some other convenient point. The clarified water is taken out continuously from the bottom of the tank. The concentration of the recovered stuff is usually 2 to 3 per cent and the contents of solids in the effluent is somewhere below .25 lb. per 1000 gallons. For fine paper mills the tank is usually cast in concrete and tile lined or made of copper, in order to have no iron parts touch the white water. In coarse paper mills the tank is usually made from iron plates or cast in concrete, but left unlined. Today, there are some 50 of these flotation savealls in operation throughout Europe. They are accessible in every part, making them very easy to clean with no difficulty or loss of time.

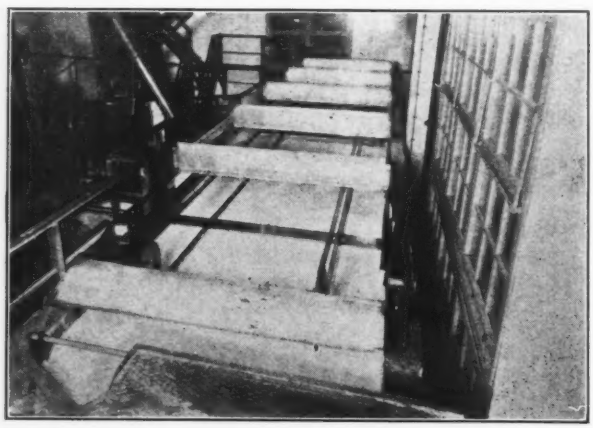


FIG. 9.

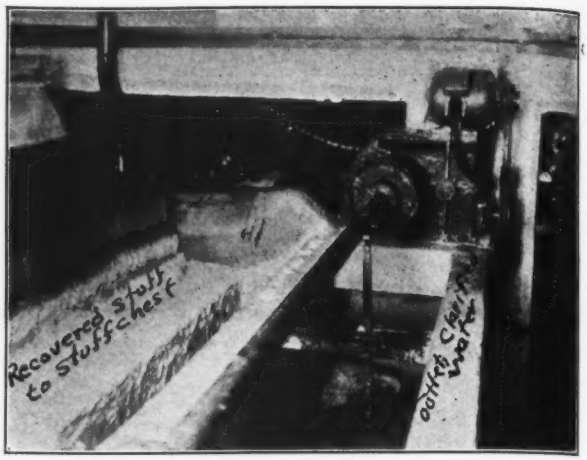


FIG. 10.

Sveen-Pedersen Recovery Plant, Fig. 7. White water under pressure together with air passes the reduction valve visible in the rear, to the left enters the open tank and leaves the apparatus, clarified, in the foremost partition of the tank, passing an overflow. To the extreme right an electrical motor with gear is shown which actuates the system of scrapers, skimming off the recovered stuff. Four scrapers are shown on their return to the inlet end, one is shown just delivering stock to the stuff trough and four scrapers travel in the tank at a speed of about 2 feet per minute.

Six Glass Cylinders, Fig. 8, show flotation of solids (offset paper) in white water sample from actual Sveen-Pedersen apparatus. The glass cylinder is 18 inches high. All the pulp rises to surface in about 1 minute. The sample was taken at the inlet of the Sveen-Pedersen Tank.

Sveen-Pedersen Plant, Fig. 9, seen from above inlet. This particular saveall has a capacity of 700 gallons per minute.

Outlet of Sveen-Pedersen Recovery Plant, Fig. 10. Gives a better view of outlet. Time of circulation from wire to machine chest from 4 to 15 minutes according to size of tank.

Report of Permanence and Durability Committee*

Current Literature

If the technical literature is used as an index, the past year has seen little activity in the collection of data relating to the permanence and durability of papers. On the other hand, it is obvious from the number of inquiries coming in from libraries and paper users that the importance of the subject is becoming more widely recognized and that more and more attention will have to be paid to it in the future if satisfactory papers are to be made.

Among the contributions to the literature which are worthy of note is a paper on "The Technical Status of the Permanence and Durability of Papers", presented by M. S. Kantrowitz before the Graphic Arts Technical Conference of the A.S.M.E. In this he discusses the chemical and physical tests which are used in such investigations, the effect of storage conditions and the specifications for permanent papers.

Another contribution, which is especially worthy of study is Technical Bulletin No. 541 of the U. S. Department of Agriculture on "Deterioration of Book and Record Papers" by T. D. Jarrell, J. M. Hankins and F. P. Veitch. This report details the chemical and physical tests of a large number of papers, the samples being taken from the

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 22-25, 1937

edges and middle portions of the same pages. The work clearly indicates that a very important factor in connection with deterioration is the acidity of the sample and that if a high pH is maintained relatively little change in the paper will take place. This has, of course, been known for some time but little emphasis has been placed on it and most of the studies relating to durability have seemed to take the view that the kind of fiber used was the most important factor. This bulletin indicates that acidity is of far more importance than the fiber used.

From Bulletin No. 541 the following significant statements are quoted. "There are serious difficulties in determining what deterioration has taken place in old papers. These include the lack of information concerning the chemical and physical properties of the papers when new, incomplete knowledge concerning conditions of storage, exposure, and use, and the lack of control samples which have been protected from deteriorating agencies."

Suggested Plan of Investigation

This makes it so plain that our knowledge must be incomplete until some carefully planned line of work is carried out, and the value of the knowledge to be gained seems so obvious that your committee has drawn up a comprehensive program for the study of the permanence of papers and is presenting it for the consideration of the Executive Committee of TAPPI. This program does not include studies of durability, except as to the extent to which the strength of the papers is affected by the chemical changes taking place during storage.

This program is not proposed as an activity of the Permanence and Durability Committee, but it is strongly urged that the Executive Committee give it careful consideration and find means to carry it out. Until such work is done it will never be possible to answer with any degree of certainty the numerous controversial questions which come up in regard to the permanence of important records.

It is realized that many points remain to be settled in regard to this program, among them being how and where the papers for testing are to be obtained; who is to collect the original data on these samples, without which the work will be of very limited value; at what points the papers are to be stored, and who is to have charge of them during the storage period; and where the work of testing is to be carried out. These points are of vital importance if the work is to be carried out as it should be, but it is impossible to settle them until authorization for the work is obtained and proper arrangements made as to funds.

If this work had been started thirty years ago we would now be well on our way toward answering many important questions, but as it is we are still theorizing and guessing. We believe it is time this uncertain policy is abandoned and some real authoritative work started.

Paper Samples to be Used

In carrying out a program of this sort, which may cover a period of fifty years or more, it is essential that the samples to be tested should be selected with care in order that they may give a maximum amount of information with a minimum of work. The following list of samples has been selected with this in mind, and while it might be very considerably expanded, it is believed that it is sufficiently comprehensive to give most of the desired information. The papers which it is considered necessary to test are as follows:

1. 100 per cent new rag paper (1) waterleaf (2) rosin sized (3) rosin and glue surface sized.
2. 100 per cent old rag paper (1) waterleaf (2) rosin sized (3) rosin and glue surface sized.
3. 100 per cent purified wood fiber (alpha) (1) waterleaf (2) rosin sized (3) starch surface sized.
4. 100 per cent bleached coniferous sulphite (1) waterleaf (2) rosin sized (3) starch surface sized.
5. 100 per cent unbleached coniferous sulphite (1) waterleaf (2) rosin sized.
6. 100 per cent bleached coniferous sulphate (1) waterleaf (2) rosin sized.
7. 100 per cent unbleached coniferous sulphate (1) waterleaf (2) rosin sized.
8. 100 per cent bleached broadleaf soda (1) waterleaf (2) rosin sized.
9. 100 per cent groundwood (1) waterleaf (2) rosin sized.
10. 100 per cent old paper stock (1) waterleaf (2) rosin sized.
11. Book paper (40 sulphite, 60 soda) rosin-alum sized (1) no filler (2) 10-11 per cent clay filler (3) 20-22 per cent clay filler.
12. Book paper as in 11 but (1) no filler (2) 10-11 per cent $CaCO_3$ (3) 20-22 per cent $CaCO_3$. (Commercial paper with 25-30 per cent $CaCO_3$ would be acceptable instead of 20-22 per cent).
13. Book paper with $CaSO_3$ filler.
14. Bond paper made from rag stock used in 1. Give rather an extreme of beating and rosin size and surface size with glue as in 1-3. This will check 1 but show effect of long beating. Three samples as in 1.
15. Bond as in 14 but using the sulphite employed in 4. Three samples as in 4.
16. Coated paper on sulphite-soda body stock, coated with (1) clay-casein (2) clay-starch (3) clay-$CaCO_3$-casein (4) clay-satin white-casein.
17. Papers made from the same fiber furnish, beaten in the same way and rosin sized so that the papers have pH values of 7.0, 6.5, 6.0, 5.5, 5.0, 4.5, and 4.0.
18. Waterleaf papers of series 1 and 4 impregnated with alcoholic rosin solution so that the final papers contain 1 and 2 per cent rosin for each series.

Total 52 samples.

Preparation of Papers

In order to make a fair comparison of waterleaf, rosin sized, and surface sized papers in any one series it is necessary that they be made from the same fibrous stock. Since it is not to be expected that such a series of samples could be obtained from the regular stock of any paper manufacturer it is highly probable that they will have to be specially prepared for this work. No matter where they are made very careful records of all manufacturing conditions should be kept. These should include the following:

1. Full history of the fibrous stock used—kind, where made, cooking and bleaching conditions, etc.
2. Beater furnish in detail—kind and amount of fiber, filler, size, alum, coloring matter, and other materials.
3. Beating and jordaning treatment.
4. pH of stock in the beater, at the machine and of the white water in the machine trays.
5. Drier temperatures.
6. Date made.

Tests of Pulps

The fibers used in preparing these papers should be given the following tests and analyses.

1. Alpha cellulose.
2. Copper number.
3. Ash.
4. Total acidity or alkalinity.
5. pH value (cold and hot extraction).
6. Lignin.
7. Solubility in ether and alcohol separately.
8. Cuprammonium viscosity.
9. Moisture.

These tests should be made as promptly as possible after the paper is made and at such intervals thereafter as seem desirable. The samples should be of sufficient size to allow these tests to be repeated a considerable number of times; about five pounds of each fiber or pulp should be ample.

Tests of Papers

The following tests and analyses should be made on each of the papers prepared for this program.

1. Ash.
2. Rosin.
3. Acid soluble iron.
4. pH value by both hot and cold extraction.
5. Total acidity or alkalinity.
6. Alpha cellulose.
7. Copper number.
8. Burst and burst ratio.
9. Tear and tear ratio.
10. Fold and fold ratio.
11. Tensile strength and tensile ratio

12. Stretch.
13. Gloss.
14. Opacity.
15. Basis weight.
16. Thickness.
17. Water penetration ($KMnO_4$ indicator).
18. Glue—starch.

These tests are to be made on these papers, (1) as soon as they are made, (2) after they have been given the usual accelerated ageing test by exposing to a temperature of 50, 75, and 100 degrees C. for 72 hours and (3) after storage of the original papers under specified conditions for various periods of time, as 5, 10, 15, 20, 30, 40, 50 years, etc.

Storage of Samples

Those portions of the papers and pulps not needed for immediate tests are to be placed in storage as soon as made and are to remain there until the completion of the investigation, except that samples are to be drawn at intervals for repetition of the tests originally made. Two separate places of storage should be selected (1) in a city where atmospheric conditions are bad; (2) in a city of similar atmospheric conditions (the same city if possible) but in a building where air washing, filtration and conditioning provide the best possible conditions. Four places of storage have been suggested but only two places are recommended. It is going to be very difficult to secure two good storage places and to inspect and take the necessary periodic samples and it seems best not to add the extra cost involved as a result of having four storage places. During storage the samples should be so placed that access of air is as uniform as possible to all parts of the samples, but dust should be avoided as completely as may be without wrapping the samples.

Instruments and Methods of Testing

All of the instruments used in these tests are to be carefully inspected for condition and accuracy at the start of the work. They are then to be used for this work only and when not in use are to be kept in storage where they will not be tampered with. They are to be kept in good working condition by any necessary repairs but under no conditions are they to be altered from their original forms.

Before this work is completed new instruments and new methods of testing will doubtless be devised. If it seems desirable these may be used on the same samples of pulp and paper but *under no conditions should they supplant or alter the original methods* of testing adopted when the work was started.

The methods of analysis are to be the standard TAPPI methods in use at the time the work is started. Even if these methods are improved or altered during the course of the work the original methods should still be followed as long as this work is continued. Copies of the standard methods should be kept on file with the paper samples so that no mistake can be made.

Testing Organization

It is recommended that all chemical and physical tests of these samples, whether original or after the various periods of storage, be made at the Forest Products Laboratory, Madison, Wis., provided satisfactory arrangements can be made. It is felt that conditions are most likely to be stable at this place, which would insure the continuance of the work with the least uncertainty and change.

Samples

There is a very real problem involved in securing adequate samples. It will require 52 samples of two reams (500 sheets) each. Each ream should be 22 x 34—40 pounds for the writings, 25 x 38—60 pounds for the uncoated book, and 25 x 38—80 pounds for the coated book. Most of these samples will have to be especially made and no paper mill could afford to make these special lots. It therefore may be best to pay the Forest Products Laboratory and the Bureau of Standards to make up the lots required. The Bureau of Standards have a coating machine so that all of the 52 samples could be made at these two laboratories.

The average weight per ream is approximately 60 pounds therefore 52 samples x 2 reams each = 104 reams of 60 pounds = 6300 pounds of paper. Assume a cost of 50 cents per pound and the total cost is $3,150.00.

Testing Equipment

The following testing equipment is required:

Mullen Tester	$275.00
Tear Tester (Elmendorf)	130.00
Schopper Folder	475.00
Tensil Tester	425.00
Gloss (Ingersol)	250.00
Opacity (Bausch & Lomb)	350.00
Sheet Scale (Schopper)	75.00
Thickness Gauge	100.00
Miscellaneous	200.00
	$2,280.00

Cost of Testing

It has been estimated that it would take one man, 6 months to make all these tests and the necessary checks. The cost is estimated at $2,500.00.

Tests at the 5, 10, 15, 20 and subsequent periods are estimated to cost $2,000.00.

Tabulating the above costs as follows:

	1st Year	Succeeding Test Periods
Samples	$3,150.00	.....
Testing Equipment	2,280.00	.....
Personnel	2,500.00	$2,500.00
Incidental	500.00	250.00
	$8,430.00	$2,750.00

If the tests are carried on for 100 years this means 13 test periods at a total cost as follows:

1 at $8,430.00	$8,430.00
12 at $2,750.00	33,000.00
Total cost for 100 years	$41,430.00

This plan provides samples for at least 200 years, or 23 test periods.

This committee recommends storage in two places, both in New York City if possible if suitable places can be secured. The second choice would be Washington, D. C., as it should be possible to secure space for one set of samples in the New Archives Building there with its nearly perfect storage conditions.

It is further recommended that the actual testing work be done at the Forest Products Laboratory as being the most likely to remain in existence, due to the importance of pulp wood to the paper industry.

This committee further recommends that the Executive Committee of TAPPI appoint a special committee to determine:

1. Is there a demand on the part of the public, the libraries and the paper manufacturers for such an undertaking?
2. Is the proposed program suitable to all interests involved?
3. What facilities for storage are available?
4. What arrangement can be made with the Bureau of Standards and the Forest Products Laboratory to assist in this work.
5. Would the Rockefeller Foundation be willing to contribute some funds for this undertaking?
6. This special committee to have the Vice-President of TAPPI as its chairman and to have a membership broad enough to cover all interests involved.
7. The Permanence and Durability Committee to act as a technical adviser to this special committee.

The above program and recommendation is herewith submitted and has the full approval of your Permanence and Durability Committee.

F. C. Clark, Chairman, Helen U. Kiely, John L. Parsons, Edwin Sutermeister, E. O. Reed, B. L Wehmhoff and M. S. Kantrowitz.

Savannah Preparing for Tappi

Hotel Accommodations

The DeSoto and Savannah Hotels, Savannah, Georgia, are preparing for the Fall Convention of the Technical Association of the Pulp and Paper Industry October 18-19-20. The DeSoto Hotel, Convention headquarters, will house all exhibits and many of the meeting guests. Reservations have been filled at the DeSoto so accommodations are being arranged for at the near-by Savannah Hotel. While the Savannah is within walking distance of the DeSoto, a shuttle taxi service has been arranged for those registered at the Convention. According to W. F. Allen, Chairman of the arrangements committee, more than 400 guests have registered for the convention. Mr. Allen requests that members of TAPPI and others who plan to be at the Convention make their reservations soon.

DE SOTO HOTEL

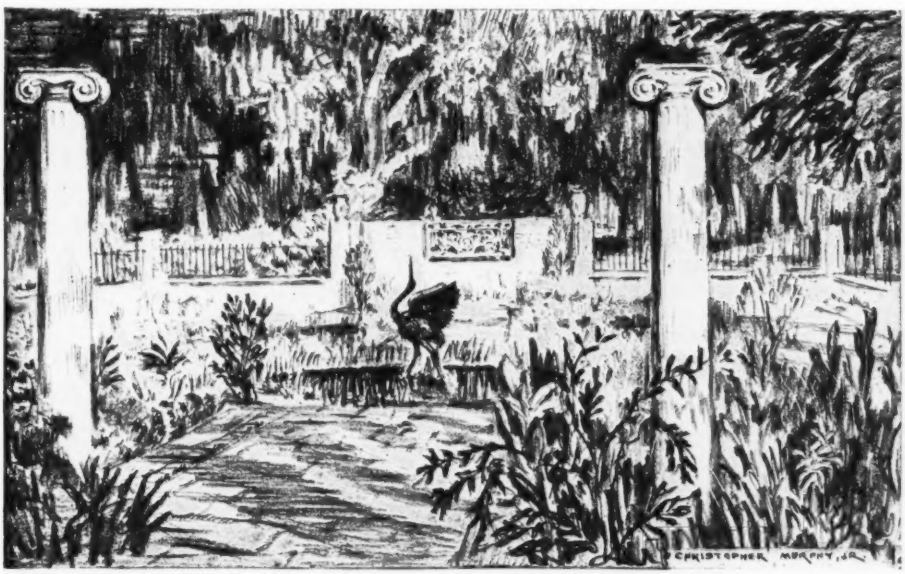
Registration at the Convention will be in the office of the Motor Club on the lobby floor of the DeSoto, convenient to the hotel desk. H. Bradley Johnson is in charge of registration. The headquarters for the TAPPI Committee will be in the same room.

The technical meetings will be held in the Gold Room of the Hotel DeSoto. The Gold Room is on the lobby floor. An amplifying system for speakers will be installed.

Fine Exhibit Planned

All exhibition space in the hotel lobby has been taken. Booths will represent 34 companies. Additional space, however, is available in the Tavern on the floor below. The list of exhibitors is as follows:

Jeffry Manufacturing Company, Strong Carlisle Company, General Electric Company, The Dorr Company, Worthington Pump Company, Walworth Company, Permutit Company, International Nickel Company, Bailey Meter Company, Downingtown Manufacturing Company, Gruendler Pulverizer Company, Johns-Manville, Oliver-United Filters, Inc., Beloit Iron Works, Bagley & Sewell Company, Gould Pumps, Inc., Lightner & Smith, Bauer Brothers & Co., Crane Company, Republic Flow Meters, Ingersoll Rand Company, Gulf Oil Company, Rosenblad Patents, Wallace & Tiernan Company, Inc., Brown Instrument Company, Rittelmyer & Co., Testing Machines, Inc., Texaco Company, Cameron Machine Company, Hercules Powder Company, Paper and Industrial Appliances, Otto J. Goeppinger, S K F Industries, Inc., Gulf Refining.



WORMSLOE GARDENS

Ladies' Program

Plenty of interest and entertainment is promised for the ladies attending the Convention. Mrs. D. G. Moon, of the Union Bag and Paper Corporation, is Chairman of the Ladies Entertainment Committee and has arranged a program of enter-

tainment which will point out interesting and beautiful features of Savannah and of the coast region of the deep South.

After registration Monday morning the 18th, there will be time for swimming in the Hotel DeSoto pool. Luncheon will follow on the terrace. In the afternoon automobiles will leave the hotel for a drive through the Southern pine country of South Carolina. Along the way stops will be made to observe woods and turpentine operations. At the destination a steamboat will be waiting which will carry the guests back to Savannah via the inland water way. The boat trip will be calm all the way (no need for Mother Sills). Entertainment will help make this a real outing.

In the evening there will be the first dinner and ball. This is a formal affair so your best bib and tucker will be in order. Negro spirituals will be on the program. By-the-way, if you have not heard these melodious songs, you have something in store.

Tuesday is really Ladies Day. The men will be busy at their technical sessions and mill visits. The day will begin at 10:00 A. M. with a golf tournament at the Savannah Golf Club. This is the oldest golf course in the United States. The hazards are earthworks thrown up during the War Between the States. For those who prefer bridge, there will be a party at the club house. The game will begin at 11:00 A. M. Luncheon and a fashion show follow the morning's activities at 1:00 o'clock.

Tuesday afternoon a sight-seeing trip will be made through beautiful old historic Savannah. There is much of interest to be seen. Undoubtedly the time will seem all too short until late afternoon when the party will drive to Wormsloe Gardens for outdoor tea. Wormsloe is one of the show gardens of the South. Following the tea the ladies will be whisked back to town and their hotels to get ready for the Crinoline dinner party. If anyone has a chest in her attic with a hoop-skirt dress of her grandmother's that would love to come out for another ball, she should pack it. Of course costumes of the period may be rented here for the price of a nice corsage. Why not, however, try copying one from an old Godey print, it will be so much fun. And won't your John look grand in pearl grey trousers and brocaded vest and stock? There will be suits for him to rent too, if he cannot get into grandfather's. Better keep the waist line down. There will be nice prizes for costumes. If you prefer, however, not to dress, wear your second best—but be sure to enjoy yourself.

Wednesday morning will be for shopping. There is antiqueing or looking at that divine dress seen at the fashion show, but do your shopping early—at 12:00 o'clock the ladies must be off for Savannah Beach with the men. Have you ever been to a real oyster roast? That is what awaits you at the ocean. There will be plenty of entertainment and a swim in the Atlantic. A buffet supper will be served back in town in time to catch the deluxe train leaving at 9:00 P. M. for Brunswick, Georgia. This is the Hercules Powder Company's party! And something to look forward to—Breakfast is on board and then off at Brunswick. A ride over the marshes of Glynn and the guests will be at Sea Island's lovely Cloister Inn, with golf, swimming or bridge and, of course, luncheon there. From Sea Island and Brunswick there will be accommodations to Florida, to Savannah or back home.

International Longshoremen Unload Pulp

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., August 23, 1937—Stevedores affiliated with the International Longshoremen's Association were placed at work this week at the barge canal terminal as a cargo of foreign wood pulp consigned to the Union Bag and Paper Corporation arrived here. It was reported that the union stevedores were sent here from the Port of Albany to avoid possible conflict with union officials. The barge, loaded with several thousand tons of baled pulpwood from Sweden, was moored alongside the terminal and activities started toward transferring the cargo to trucks for removal to the mills at Hudson Falls. It is expected that several other shipments of the foreign product will be towed here during the remainder of the season and the barges will probably carry return cargoes of bags for customers in the large cities. During other seasons that pulp was received here only men in this section were employed in unloading the shipments but it is believed that the new method is being followed for the purpose of continuing union labor through the entire handling of cargoes.

Rates on Pulp Not Unreasonable

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 25, 1937—In a decision by the Interstate Commerce Commission in the case of the Columbian Paper Company against the Norfolk & Western Railway Company it was found that the rates on wood pulp, in carloads, from Bristol, Va.,-Tenn., to numerous destinations in official and western trunk line territories are not unreasonable.

The Commission in the same case also found that the rates on domestic wood pulp, in carloads, from Bristol, and on imported wood pulp, from North Atlantic ports, Norfolk, Va., to Portland, Me., inclusive to destinations in official and western trunk line territories were not found unduly prejudicial and the complaint was dismissed.

Herbert J. Kelly Goes To Montreal

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., Herbert J. Kelly, has gone to Montreal to become superintendent of the Perkins Tissue Mills of that city. Mr. Kelly resigned in April of this year the foremanship of the printing and waxing department of the Winter street division of the American Tissue Mills, a job he had held for 20 years.

The Perkins Tissue Mills, located on Guy street, Montreal, were purchased from the management of the American Tissue Mills of this city three years ago by George E. Watson of Harvard street, this city.

Guy E. Perkins Dead

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., August 24, 1937—Guy E. Perkins for several years advertising manager for the American Tissue Mills Inc., died last week at his home 27 Miller avenue. Since 1930 he had been sales and general manager of the B. F. Perkins & Son plant in Willimansett. During the World War he served as quartermaster in the Port Depot detail at Newport News, Va. Besides his wife he leaves one son, Guy Jr. The funeral and burial took place Saturday.

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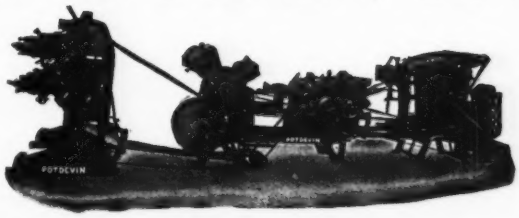

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NEW YORK IMPORTS

WEEK ENDING AUGUST 21, 1937

SUMMARY

Cigarette paper .....953 cs.
Wall paper .....1 ble., 2 cs.
Newsprint .....12,815 rolls
Printing paper .....106 rolls, 123 bls., 58 cs.
Wrapping paper .....379 rolls, 5 bls., 11 cs.
Filter compound .....80 bls.
Filter mass .....100 bls.
Drawing paper .....5 bls., 66 cs.
Metal coated paper .....102 cs.
Baryta coated paper .....56 crates, 10 cs.
Basic paper .....50 crates, 22 cs.
Surface coated paper .....32 cs.
Decalcomanias .....30 cs.
Transfer paper .....14 cs.
Colored paper .....2 bls.
Paper tubes .....5 cs.
Miscellaneous paper .....1,273 rolls, 221 bls., 21 bdls., 36 cs.

CIGARETTE PAPER

R. J. Reynolds Tobacco Co., *Pr. Harding,* Havre, 70 cs.
Champagne Paper Corp., *Normandie,* Havre, 659 cs.
De Mauduit Paper Corp., *Normandie,* Havre, 3 cs.
H. H. Strauss, *Paris,* Havre, 221 cs.

WALL PAPER

F. J. Emmerich, *Columbus,* Bremen, 1 cs.
———, *Bremen,* Bremen, 1 ble.
———, *Berengaria,* Southampton, 1 cs.

NEWSPRINT

International Paper Co., *Wacosta,* Dalhousie, 4,877 rolls.
International Paper Sales Co., *Wacosta,* Dalhousie, 880 rolls.
N. Y. Evening Journal, *Svaneholm,* Kotka, 746 rolls.
Walker Goulard Plehn Co., *Svaneholm,* Kotka, 140 rolls.
Wilkinson Bros. & Co. Inc., *Svaneholm,* Kotka, 86 rolls.
Jay Madden Corp., *Svaneholm,* 278 rolls.
Jay Madden Corp., *Berlin,* Bremen, 355 rolls.
Jay Madden Corp., *Columbus,* Bremen, 170 rolls.
Jay Madden Corp., *Pr. Harding,* Hamburg, 179 rolls.
International Paper Co., *International No. 1,* Gatineau, 309 rolls.
International Paper Co., *G. T. D.,* Gatineau, 299 rolls.
N. Y. Evening Journal, *Markland,* Liverpool, N. S., 496 rolls.
N. Y. Tribune, *Markland,* Liverpool, N. S., 1,601 rolls.
World Telegram, *Markland,* Liverpool, N. S., 589 rolls.
Brooklyn Daily Eagle, *Markland,* Liverpool, N. S., 273 rolls.
Parsons & Whittemore, Inc., *Markland,* Liverpool, N. S., 130 rolls.
H. G. Craig Co., *Kermic,* Donnacona, 287 rolls.
H. G. Craig Co., *A. C. D.,* Donnacona, 293 rolls.
Perkins Goodwin & Co., *Hamburg,* Hamburg, 117 rolls.
———, *Stavangerfjord,* Skien, 472 rolls.
———, *Stavangerfjord,* Oslo, 238 rolls.

PRINTING PAPER

Jay Madden Corp., *Pr. Harding,* Hamburg, 75 rolls, 63 bls.
Steiner Paper Corp., *Westernland,* Antwerp, 29 cs.
R. J. Saunders, *Aquitania,* Southampton, 29 cs.
Keuffel & Esser Co., *Washington,* Hamburg, 31 rolls.
———, *Stavangerfjord,* Skien, 60 bls.
Japan Paper Co., *Berengaria,* Southampton, 1 cs.

WRAPPING PAPER

Heemsoth Kerner Corp., *Columbus,* Bremen, 5 bls.
Jay Madden Corp., *Pr. Harding,* Hamburg, 15 rolls.
Keller Dorian Paper Co., *Excalibur,* Marseilles, 9 cs.
Standard Products Corp. *Black Condor,* Antwerp, 2 cs.
Jay Madden Corp., *Washington,* Hamburg, 364 rolls.

FILTER COMPOUND

———, *Hamburg,* Hamburg, 80 bls.

FILTER MASS

A. W. Fenton Co. Inc., *Columbus,* Bremen, 100 bls.

DRAWING PAPER

Keuffel & Esser Co., *Pr. Harding,* Hamburg, 45 cs.
Favor Ruhl & Co., *Birmania,* Genoa, 4 cs.
Keuffel & Esser Co., *Washington,* Hamburg, 17 cs.
R. Wilson Paper Corp., *Toronto City,* Bristol, 5 bls.

METAL COATED PAPER

K. Pauli Co., *Berlin,* Bremen, 80 cs.
K. Pauli Co., *Hamburg,* Hamburg, 22 cs.

BARYTA COATED PAPER

Globe Shipping Co., *Columbus,* Bremen, 56 crates, 10 cs.

BASIC PAPER

Globe Shipping Co., *Columbus,* Bremen, 50 crates.
W. Reimerdes, *Bremen,* Bremen, 22 cs.

SURFACE COATED PAPER

Gevaert Co. of America, *Westernland,* Antwerp, 28 cs.
C. Happel, *Hamburg,* Hamburg, 4 cs.

DECALCOMANIAS

Sellers Transportation Co., *Columbus,* Bremen, 12 cs.
Sellers Transportation, *Bremen,* Bremen, 18 cs.

TRANSFER PAPER

Phoenix Shipping Co., *Hamburg,* Hamburg, 14 cs.

COLORED PAPER

W. H. S. Lloyd & Co., *Black Condor,* Antwerp, 1 ble.
———, *Black Condor,* Antwerp, 1 ble.

PAPER TUBES

———, *Berlin,* Bremen, 5 cs.

MISCELLANEOUS PAPER

———, *Berlin,* Bremen, 1,053 rolls, 126 bls.
———, *Britannic,* London, 2 cs.
T. N. Fairbanks Co., *Komaki Maru,* Yokohama, 8 cs.
Dingelstedt & Co., *Hamburg,* Hamburg, 26 cs.
———, *Hamburg,* Hamburg, 221 bls., 220 rolls.
Rohner Gehrig & Co., *Paris,* Havre, 21 bdls.

RAGS, BAGGINGS, ETC.

D. S. Stern Corp., *Banaderos,* Antwerp, 43 bls. rags.
Manufacturers Trust Co., *Banaderos,* Antwerp, 24 bls. rags.
W. Steck & Co., *Banaderos,* Antwerp, 83 bls. waste strings.
Castle & Overton, Inc., *Black Tern,* Rotterdam, 82 bls. bagging.
Castle & Overton, Inc., *Pr. Harding,* Hamburg, 77 bls. rags.
———, *Oriente,* Havana, 71 bls. rags.
Castle & Overton, Inc., *Caledonia,* Glasgow, 59 bls. bagging.
M. Snedeker Corp., *Caledonia,* Belfast, 16 bls. paper stock.
———, *Birmania,* Trieste, 200 bls. rags.
Chase National Bank, *Westernland,* Antwerp, 93 bls. jute waste.
F. J. Fawcett, Inc., *Westernland,* Antwerp, 4 bls. flax waste.
———, *Franconia,* Liverpool, 45 bls. rags, 67 bls. bagging.
———, *Excalibur,* Alexandria, 67 bls. rags.
Hicks Costarino Co. Inc., *Excalibur,* Alexandria, 315 bls. rags.
W. Steck & Co., *Excalibur,* Alexandria, 94 bls. bagging.
Castle & Overton, Inc., *Excalibur,* Alexandria, 68 bls. rags.

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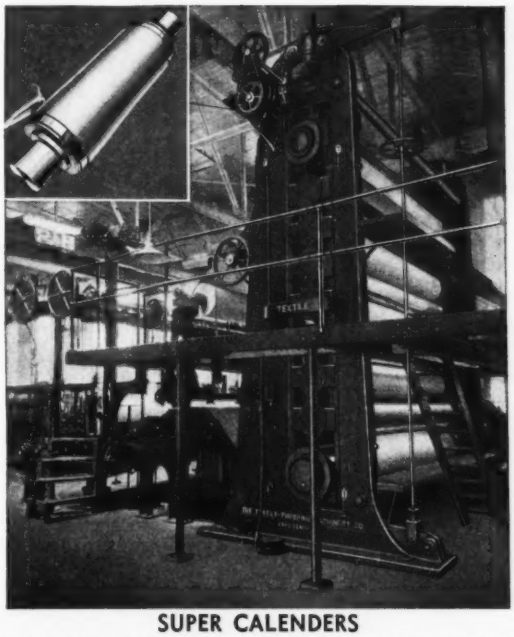

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MILLS:

Mechanicsville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Cass, West Virginia

Keene, Inc., *Excalibur*, Alexandria, 74 bls. bagging.
Irving Trust Co., *Black Condor*, Antwerp, 21 bls. rags.
American Express Co., *Black Condor*, Antwerp, 240 bls. rags.
E. J. Keller Co. Inc., *Excalibur*, ——, 264 bls. rags.
——, *Exchange*, Piraeus, 131 bls. bagging, 97 bls. rags.
Castle & Overton, Inc., *Rotterdam*, Rotterdam, 110 bls. bagging.
E. J. Keller Co. Inc., *Silverbeech*, ——, 166 bls. paper stock.

OLD ROPE

A. Birkenstein & Co., *Toronto City*, Bristol, 60 coils.

WOOD PULP

——, *Hamburg*, Hamburg, 1,004 bls. wood pulp, 150 tons.
M. Sone, *Hamburg*, Hamburg, 225 bls. wood pulp, 45 tons.
Guaranty Trust Co., *Hamburg*, Hamburg, 913 bls. wood pulp, 182 tons.
Castle & Overton, Inc., *Hamburg*, Hamburg, 2,056 bls. wood pulp, 411 tons.
E. M. Sergeant Pulp & Chemical Co., *Stavangerfjord*, Nygard, 300 bls. chemical pulp.
The Borregaard Co. Inc., *Stavangerfjord*, Sarpsborg, 1,008 bls. sulphate.
Irving Trust Co., *Stavangerfjord*, Oslo, 250 bls. chemical pulp.
Irving Trust Co., *Stavangerfjord*, Oslo, 665 bls. mechanical pulp.
Bulkley Dunton Pulp Co. Inc., *Rotterdam*, ——, 180 bls. wood pulp.
Castle & Overton, Inc., *Svancholm*, Viipuri, 2,257 bls. wood pulp.
Gottesman & Co. Inc., *City of Fairbury*, Sweden, 1,200 bls. sulphate.

WOOD PULP BOARDS

Jay Madden Corp., *Svaneholm*, Kotka, 315 rolls, 168 bls.
——, *Svaneholm*, Viipuri, 451 rolls.

WOOD PULP PASTE BOARDS

Flexideal Dry Mat Co., *Pr. Harding*, Hamburg, 46 bls.

NEWARK IMPORTS

WEEK ENDING AUGUST 21, 1937

H. G. Craig Co., *Newscarrier*, Donnacona, 320 rolls.

ALBANY IMPORTS

WEEK ENDING AUGUST 21, 1937

Lagerloef Trading Co., *Svaneholm*, Abo, 433 bls. sulphite.
Lagerloef Trading Co., *Svaneholm*, Viipuri, 4,424 bls. sulphite, 312 bls. sulphate.
Lagerloef Trading Co., *Svaneholm*, Kotka, 590 bls. sulphite, 715 bls. sulphate.
Gottesman & Co. Inc., *Toledo*, Sweden, 1,350 bls. sulphite.

PORTLAND IMPORTS

WEEK ENDING AUGUST 21, 1937

Gottesman & Co. Inc., *Svancholm*, Finland, 330 bls. mechanical pulp.

BOSTON IMPORTS

WEEK ENDING AUGUST 21, 1937

Crocker Burbank Co., *American Merchant*, London, 110 bls. waste paper.
——, *American Merchant*, London, 149 bls. waste paper.
Brown Bros. Harriman & Co., *American Merchant*, London, 133 coils old rope.
M. Sone, *Alberta*, Trieste, 717 bls. wood pulp.

NEW LONDON IMPORTS

WEEK ENDING AUGUST 21, 1937

Price & Pierce, Ltd., *Rexen*, ——, 150 bls. unbleached sulphite, 3,150 bls. unbleached sulphate.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 21, 1937

G. A. Henshaw & Son, *Banaderos*, London, 160 coils old rope.

BALTIMORE IMPORTS

WEEK ENDING AUGUST 21, 1937

Washington Post, *Markland*, Liverpool, N. S., 2,395 rolls newsprint.
——, *Black Condor*, Rotterdam, 65 bls. wood pulp boards, 16 tons.
American Express Co., *Black Condor*, Antwerp, 2 cs. surface coated paper.

NEWPORT NEWS IMPORTS

WEEK ENDING AUGUST 21, 1937

Gottesman & Co. Inc., *City of Fairbury*, Sweden, 2,500 bls. sulphite.

CHARLESTON IMPORTS

WEEK ENDING AUGUST 21, 1937

E. J. Keller Co. Inc., *Schoharie*, ——, 44 bls. bagging.

MONTREAL IMPORTS

WEEK ENDING AUGUST 21, 1937

Gottesman & Co. Inc., *Ragnhildsholm*, Sweden, 4,250 bls. sulphite.

H. S. Knipschild Goes with Milprint

Milprint, Inc. of Milwaukee, Wis., announces the appointment of Howard S. Knipschild as a representative in the Chicago area. Mr. Knipschild comes to Milprint with a wealth of rich experience in the packaging industry, having been associated formerly with the Thomas M. Royal Company and the Dobeckmun Company. Previous to that he spent several years in the wholesale grocery trade, where he became thoroughly familiar with all kinds of food products and the packaging problem peculiar to each.

Mr. Knipschild will represent Milprint, carrying the complete line of packaging, printing and point of sale lithograph material. Mr. Knipschild's father was secretary of the Master Bakers' Association of America for twenty years and, with his own long association in the food industry, is expected to be of real helpfulness in solving packaging problems of all kinds.

Stowe-Woodward Rolls at Charleston

The paper machine in the new West Virginia Pulp and Paper Company mill at Charleston is equipped with four 30-inch diameter Stowe-Woodward Rubber Covered Rolls for the top press first, second and third rolls, with one roll as a spare.

Stowe-Woodward Rolls are also used on the vacuum forming machine. This machine is equipped with five Stowe-Woodward Squeeze Rolls and Presses.

Western States Envelope Co. Gives Bonus

[FROM OUR REGULAR CORRESPONDENT]

MILWAUKEE, Wis., August 23, 1937—Western States Envelope Company last week gave all of its employees a bonus. It amounts to $25 for all whose wages are $25 a week or more, and a week's salary to all who earn less than $25 a week. The bonus is based on favorable earnings of the company for the first six months of this year.

Wm. Catherwood Goes With Behrens Co.

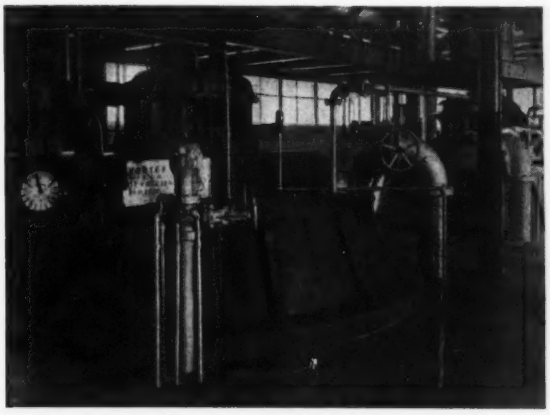
Wm. Catherwood, for many years with Marquardt & Company and Forest Paper Company, has joined the sales force of S. B. Behrens & Co., fine paper merchants.

GEE! THIS DIAMOND TURNED SURFACE IS SMOOTH!
FEWER RE-PLACEMENTS NOW
A LOT OF WEAR IN A ROLL LIKE THIS!
BIG STURDY OVERSIZE STEEL SHAFT
WALDRON PAPER ROLLS

Your first experience with Waldron Rolls will acquaint you with dozens of superior construction and operating features. Paper, Compression, Surface Hardness, Heads, Shafts, Proportions! Our Catalog explains how they are built to give much longer service. Write for copy.

JOHN WALDRON CORPORATION
Main Office and Works: NEW BRUNSWICK, N. J.
Chicago New York Portland, Ore.

THE APPLETON VORTEX BEATER



For operating efficiency, new mills and old mills are installing these modern beaters that prepare stock in less time, at higher consistencies, in greater volume, with less power, in half the space and at lower cost.

THE APPLETON MACHINE COMPANY . Appleton, Wisconsin

WHY NOT

REDUCE YOUR FOURDRINIER WIRE COSTS BY USING A WIRE THAT WILL GIVE YOU ALL AROUND SERVICE.

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A WIRE WITH A NON-CRACK PATENTED SELVIDGE

PURVES WIRES

ARE AS GOOD AS THE BEST.

PURVES MACHINE WIRE COMPANY, INC.
HOLYOKE, MASSACHUSETTS

Mundt

Perforated Screens For Pulp and Paper Mills

Steel, Copper, Brass Bronze, Monel Metal and Other Alloys Punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

Charles Mundt & Sons
63 Fairmount Ave. Jersey City, N. J.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, August 25, 1937.

The demand for paper during the week continued good for the season with prices continuing strong. Quotations of white papers, showed an upward tendency under the influence of bleached sulphite pulp prices. The call for book papers continued in good volume with more inquiries for this stock. Glazed paper was especially active. Bonds, ledgers and box coverings continued in good demand. Some merchants reported business as quiet but take an optimistic view of the future. The wrapping paper market is more than seasonally active, with the expectation of a good volume for September.

The demand for newsprint continued active, with a substantial volume of shipments. The demand for paper specialties continued good for the more seasonable items. Box board remained quiet with a general improvement expected.

Chemical Pulp

The chemical pulp market continued on about the same level during the week, with a decrease in demand for so-called spot pulp, on which prices were somewhat lower. The demand for bleached sulphite remained fairly brisk, but buyers showed little interest in their future requirements. Sales of kraft pulp, manufactured in the South, have been reported at $55 per ton delivered at the buyers mills, with some quotations at slighter lower prices.

Mechanical Pulp

No noteworthy change has taken place in the mechanical pulp market. Some business has been reported closed at prevailing prices for prompt and forward deliveries this year. Due to the reported scarcity of pulpwood in some regions of manufacture, prices are firm with demand about on a par with chemical pulp.

Old Rope and Bagging

The old rope market continued quiet. The condition of foreign and domestic manila continued unchanged. Trading in the scrap and bagging markets continued steady, with some dealers and importers buying at certain price levels in expectation of an improved consumer demand.

Rags

The domestic market was less firm during the week. The market reacted to a slightly higher level. The withdrawal of foreign demand and the prospect of a larger cotton crop, has softened this market. In general, prices remain unchanged.

Waste Paper

The waste paper market continued strong. Mixed paper continued to be sold at unchanged prices. Prices continued steady in all export quotations, with fair demand. There was little change in folded news stock.

Twine

The twine market continued fair, with moderate demand for sisal, jute and hemp. There was a slight downward tendency in prices of soft fibered twines. Improvement in cotton twines continued.

To Add New Machine At Camden

CAMDEN, Ark., August 24, 1937—An additional paper making machine is to be installed in the mill of the Southern Kraft Corporation, Camden, giving the Camden plant three paper machines. Work will start at once on a new brick extension to the present machine room. Estimated cost of the improvement is $600,000, and the work will require about six months to complete. More than 200 workmen will be employed in construction, and after the new building and machine are completed, 50 men will be required to operate it.

The new building will be of the same construction as the present building.

The new machine will be of the Fourdrinier type, same as the other two machines, but smaller than the two machines that have been in operation since the mill began operations in 1928. Capacity of the new machine will range from 75 to 100 tons daily, depending on the type of paper being made.

This is a part of the expansion program for the Camden mill, a subsidiary of the International Paper Company. Other improvements are contemplated.

Since the $5,000,000 paper and pulp mill was built at Camden ten years ago, two new bag plants have been added. Paper made in the Camden mill is now used in these two plants, the George & Sherrad, and the Bagpak. More than 1,200 persons are employed in the three plants while hundreds are given employment in the timber and wood departments.

Crodon Chromium Plating

"Chromium Plating," a new twenty-four page booklet just prepared by the Chromium Corporation of America, discusses both the industrial and decorative uses of *Crodon*, the trade name which identifies all chromium plating supplied by the company.

The pamphlet outlines the characteristics of chromium: hardness, corrosion resistance, good heat conductivity, smoothness and non-contamination. Then it shows how Crodon Chromium Plating is especially adaptable in retaining these characteristics.

The executive office of the Chromium Corporation of America is situated at 120 Broadway, New York City.

RAG CUTTERS

TAYLOR, STILES & COMPANY
TRADE MARK
GIANT
REG. U.S. PAT. OFF.
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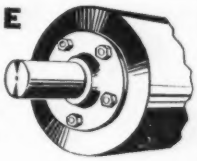

And their judgment selects Rodney Hunt's wood press rolls, as well as "Shaf-tite" felt rolls of wood, rubber or metal.

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Water Wheels and Turbines—Canal Gates—Gate Hoists—Racks and Rakes.
Endless Felt Washers

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BLOW PIT
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PULP STORAGE
LEAD LINED

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WOOLFORD WOOD TANKS
PHILADELPHIA

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PASCHALL P. O., PHILADELPHIA, PA.

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CHLORINE and PHOSPHATE CONTROL

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with equalized ply stresses.
THE MANHATTAN RUBBER MFG. DIVISION
OF RAYBESTOS-MANHATTAN, INC.
EXECUTIVE OFFICES AND FACTORIES, PASSAIC, NEW JERSEY

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, August 25, 1937.

BLANC FIXE—The blanc fixe market is very quiet. Prices comply with previous ruling market levels. Pulp is selling at from $42.50 to $45 per ton, in bulk, while the powder is offered at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—Trading in the bleaching powder market is still seasonably strong. The contract movement is regular. Prices are the same as formerly quoted levels. Bleaching powder is selling at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The casein market remains steady. Domestic standard ground casein is quoted at from 13 to 14 cents per pound, while domestic finely ground casein is selling at from 13½ to 14½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA—The condition of the caustic soda market is firm. The contract movement is normal. Solid caustic soda is selling at from $2.10 to $2.30, while flake and ground is quoted at from $2.50 to $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—The china clay market is active. Contract shipments are moving freely. Imported china clay is selling at from $14.50 to $25 per ton, ship side, while domestic paper making clay is quoted at from $6.50 to $12 per ton, at works.

CHLORINE—Trading in the chlorine market continues strong. The contract movement is normal. Prices conform with formerly quoted levels. Chlorine is quoted at $2.15 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market remains fairly firm. Prices manifested very little alteration. Paper making rosin is quoted at $7.80 and wood rosin at $7.90 per 280 pounds, gross weight, in barrels at Savannah. Seventy per cent rosin size is selling at $3.65 per 100 pounds, in tank cars, at works.

SALT CAKE—The salt market is firm. Salt cake is selling at from $12 to $13; chrome salt cake at from $10 to $11, f.o.b., shipping point, while imported salt cake is quoted at $12, Gulf or Atlantic Seaboard, on dock.

SODA ASH—The soda ash market is active. Demand from the paper mills is strong. Prices are the same as formerly. Quotations in soda ash, in car lot, at works, per 100 pounds, are as follows: in bulk, $.90; in bags, $1.05; and in barrels, $1.35.

STARCH—Trading in the starch market is not very active. Prices remain at the newly established levels. Paper making starch is scheduled at $3.45 per 100 pounds, in bags, and at $3.70 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA—The condition of the sulphate of alumina market is normal for the season. Contract shipments are moving freely. Prices are steady. Commercial grades are selling at from $1.25 to $1.60, while iron free is quoted at from $2 to $2.25 per 100 pounds, in barrels, at works.

SULPHUR—The sulphur market remains firm. Yearly contracts are quoted at $18 per long ton on orders of 1,000 tons or over. On spot and nearby car loads the quotation is $21 per ton. All quotations are in car lots, at works.

TALC—The talc market continues active. Prices comply with previous market levels. Domestic talc is selling at from $15 to $18 per ton, at eastern mines, while imported talc is quoted at from $23 to $30 per ton, on dock.

Market Quotations

Paper

Tissues—Per Ream—

White No. 1	1.10	@	—
White No. 1 M. G.	1.07½	@	—
White No. 1½	.77½	@	—
White No. 2	.75	@	—
Anti-Tarnish M. G.	.77½	@	—
Colored	.90	@	—
Kraft	.77½	@	—
Manila	.75	@	—
Unbleached Toilet	2.60	@	3.30
Bleached Toilet	3.94	@	5.26

Paper Towels—

Unbleached	2.10	@	3.35
Bleached	3.30	@	3.70

Manila—

No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00

Fibre Papers—

No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75

(Delivered New York)

News, per ton—

Roll, contract	42.50	@	—
Sheets	47.50	@	—

Kraft—

No. 1 Northern	5.25	@	5.75
Standard	5.00	@	—
Southern	5.00	@	—
Glazed	4.50	@	—
Striped	4.75	@	—

Boards, per ton—

News	47.50	@	—
Chip	45.00	@	—
Sgl. Mla. Ll. Chip	55.00	@	—
Jute Lined Chip	55.00	@	—
Kraft Liners	65.00	@	—
White Pat. Coated	67.50	@	—
Binders Boards	75.00	@	80.00

The following are representative of distributors' resale prices:—

Rag Content Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$41.40@$48.50	$42.55@$50.00
100% Rag	32.80@ 38.50	33.95@ 39.75
85% Rag	.....	32.20@ 37.75
75% Rag	24.75@ 29.00	25.90@ 30.50
65% Rag	21.65@ 26.25	22.80@ 27.75
50% Rag	18.70@ 22.75	19.90@ 24.25
25% Rag	15.80@ 19.25	16.95@ 20.75

Regular Colors @ $1.50 cwt. extra.
Heavy Colors @ $3.00 cwt. extra

Sulphite Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$9.35@$11.50	$10.55@$12.75
No. 2	8.50@ 10.25	9.65@ 11.75
No. 4	7.60@ 9.25	8.80@ 10.75

Regular Colors @ $1.50 cwt. extra.
Heavy Colors @ $3.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper,
Delivered in Zone 1:

No. 1 Glossy Coated	$12.45@$14.25
No. 2 Glossy Coated	10.80@ 12.25
No. 3 Glossy Coated	9.65@ 11.00
No. 4 Glossy Coated	9.05@ 10.50
No. 1 Antique (watermarked)	9.05@ 10.50
No. 2 Offset	8.35@ 9.50
A Grade E. F.	8.20@ 9.50
A Grade S. & S. C.	8.45@ 9.75
B Grade E. F.	7.60@ 8.75
B Grade S. & S. C.	7.85@ 9.00
C Grade E. F.	7.30@ 8.50
C Grade S. & S. C.	7.55@ 8.75
D Grade E. F.	7.00@ 8.25
D Grade S. & S. C.	7.25@ 8.50

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—		
Moist	35.00	@36.00
Dry	40.00	@42.00

(Delivered)

No. 1 Domestic and Canadian	36.00	@37.50

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.25	@	4.65
Prime Qualities—			
Easy-Bleaching Sulphite	3.50	@	4.00
Strong Unbleached Sulphite	3.25	@	3.65

(On Dock, Atlantic Ports)

Kraft Bleached	4.00	@	4.75
Kraft Light & Strong	3.00	@	3.75
Kraft No. 1	2.90	@	3.65
Kraft No. 2	2.50	@	2.75

(F.o.b. Pulp Mill)

Kraft Domestic	2.75	@	3.25

(Delivered)

Soda Bleached	3.15	@	—

Add 60 cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	8.75	@	9.00
Silesias, No. 1	6.75	@	7.00
New Unbleached	9.25	@	9.50
Blue Overall	7.25	@	7.50
Fancy	3.75	@	4.25
Washables	2.75	@	3.25
Mixed Khaki Cuttings	4.25	@	4.50
O. D. Khaki Cuttings	4.75	@	5.00

Old Rags

White, No. 1—			
Repacked	3.75	@	4.25
Miscellaneous	3.00	@	3.25
White, No. 2—			
Repacked	2.60	@	2.85
Miscellaneous	2.00	@	2.25
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.90	@	2.00
Roofing Rags—			
No. 1	Nominal		
No. 2	1.20	@	1.30
No. 3 (bagging)	.90	@	1.00
No. 4	.90	@	1.00
No. 5A	.75	@	.85

Foreign Rags

New Rags

New Dark Cuttings	Nominal
New Mixed Cuttings	Nominal
New Light Silesias	Nominal
Light Flannelettes	Nominal
New White Cuttings	Nominal
New Light Oxfords	Nominal
New Light Prints	Nominal

Old Rags

No. 1 White Linens	Nominal
No. 2 White Linens	Nominal
No. 3 White Linens	Nominal

LINDSAY WIRES

Longcrimp, Spiral Weave
Modified Longcrimp
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They are all "Live Wires"

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Appleton Felts

Make Good Paper

Appleton Woolen Mills, Appleton, Wisconsin

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OF ALL DESCRIPTIONS, BLANK OR FINISHED

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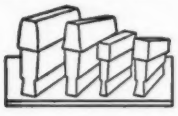

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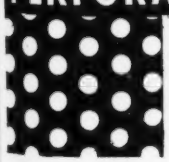

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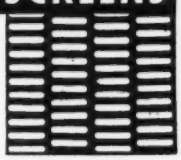

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No. 1 White Cotton	Nominal		
No. 2 White Cotton.	Nominal		
No. 3 White Cotton.	Nominal		
No. 4 White Cotton	Nominal		
Extra Light Prints..	Nominal		
Ord. Light Prints...	Nominal		
Med. Light Prints...	Nominal		
Dutch Blue Cottons..	Nominal		
French Blue Linens..	Nominal		
German Blue Linens.	Nominal		
German Blue Cottons	Nominal		
Checks and Blues...	Nominal		
Linsey Garments....	Nominal		
Dark Cottons.....	Nominal		
Old Shopperies.....	Nominal		
New Shopperies.....	Nominal		
French Blues.....	Nominal		

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.35	@	2.50
Domestic	2.25	@	2.35
Wool Tares, light	1.75	@	1.85
Wool Tares, heavy	2.35	@	2.45
Bright Bagging	1.70	@	1.75
Manila Rope—			
Foreign	4.75	@	5.00
Domestic	5.00	@	5.25
Jute Strings	2.75	@	3.00
Sisal Strings	2.60	@	2.75
Mixed Strings	Nominal		

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1	2.60	@	2.70
Hard White No. 2	2.40	@	2.50
Soft White No. 1	2.30	@	2.40
Flat Stock—			
Stitchless	1.50	@	1.55
Overissue Mag	1.50	@	1.55
Solid Flat Book	1.20	@	1.25
Crumbled No. 1	.85	@	.95
Ledger Stock	1.55	@	1.60
New B. B. Chips	.45	@	.50
Manila—			
New Env. Cut	2.15	@	2.25
New Cuttings	1.65	@	1.75
Old Kraft Machine—			
Compressed bales	1.55	@	1.65
News—			
No. 1 White News	1.45	@	1.55
Strictly Overissue	.65	@	.75
Strictly Folded	.42½	@	.47½
No. 1 Mixed Paper	.45	@	.50

Twines

(F. o. b. Mill)

(Soft Fibre)			
Coarse Polished—			
India	.16	@	.18½
Belg. White Hemp	.17	@	.20½
India Compress	.16½	@	.17
Fine Polished—			
Fine India	.22	@	.24
Unpolished—			
Box	.11¾	@	.12¼
Paper Makers	.11½	@	.13¾
Tube Rope	.12½	@	.15¼
Wall Paper	.13½	@	.14¼
Wrapping	.17	@	.21
Soft Fiber Rope	.15¼	@	—
(Hard Fibre)			
Bond	.13½	@	.14
Anchor	.13	@	.14
Manila	.21	@	.28

Domestic	4.25	@	4.50
Transmission Rope	2.00	@	2.25
Jute Rope	1.85	@	2.12½
Soft Jute Strings	2.00	@	2.50
Jute Carpet Threads	1.75	@	2.00
Gunny No. 1			
Foreign	2.35	@	2.40
Domestic	2.00	@	2.10
Bleachery Burlap	4.00	@	4.25
Scrap Burlap—			
Foreign	2.15	@	2.25
Domestic	1.75	@	1.85
Scrap Sisal	2.35	@	2.40
Scrap Sisal for Shredding	2.50	@	—
Wool Tares, heavy	—	@	2.25
New Burlap Cuttings	2.45	@	3.00
Aust. wool pouches	3.00	@	3.25
Heavy bailing bagging	2.40	@	2.60
Paper Mill Bagging	1.70	@	1.75
Bagging No. 2	.90	@	1.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.03½	@	.03¾
New White No. 1	.08½	@	.08¾
New White No. 2	.06	@	.06½
New Light Flannelettes	—	@	.06½
Silesias No.	—	@	.06½
New Black Silesias	.04¼	@	.04½
Soft Unbleached	.09¼	@	.09½
Blue Cheviot	.07¼	@	.07½
Fancy	.03¾	@	.04
Washable	.03	@	.03¼
Kraft, M. F.	6.00	@	—

Cottons—According to grades—			
Blue Overalls	.07	@	.07¼
New Black, soft	.04¼	@	.04½
Khaki Cuttings	.04½	@	.04¾
O. D. Khaki	.04¾	@	.05
Corduroy	.03¼	@	.03½
New Canvas	.07¾	@	.08¼
B.V.D. Cuttings	.08¾	@	.09

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.75	@	2.00
Third and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	3.90	@	4.00
Roofing Stock—			
No. 1	1.30	@	—
No. 2	1.20	@	1.25
No. 3	.90	@	1.00

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.65	@	1.85
Dutch Blues	3.00	@	3.15
New Checks and Blues	2.85	@	3.00
Old Fustians	2.50	@	2.75
Old Linsey Garments	2.15	@	2.50
New Silesias	6.50	@	7.00

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.08	@	.08¼
New White, No. 2	.04½	@	.05
Light Silesias	.05½	@	—
Silesias, No. 1	—	@	.05½
Black Silesias, soft	.03½	@	.04
New Unbleached	.08¼	@	.08¾
Washable, No. 1	.02	@	.02¼
Blue Overall	.06	@	.06¼
Cottons—According to grades—			
Washable, No. 2	.01½	@	.01¾
New Blue	.01¾	@	.02
Fancy Percales	.03	@	—
New Black Soft	.03	@	.03½
New Light Seconds	—	@	.05½
New Dark Seconds	1.25	@	1.50
Khaki Cuttings—			
No. 1 O. D.	.04	@	.04½
No. 2 Mixed	—	@	.03
Corduroy	.02¾	@	.03
New Canvas	.06½	@	.07
New Black Mixed	.02	@	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	—	@	3.00
Miscellaneous	2.50	@	2.75
Thirds and Blues—			
Miscellaneous	2.00	@	2.25
Repacked	2.25	@	2.50
Black Stockings (Export)	4.50	@	5.00
Roofing Stock—			
Foreign No. 1	1.50	@	1.75
Domestic No. 1	2.00	@	2.10
Domestic No. 2	1.90	@	2.00
Roofing Bagging	1.75	@	—

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	—	@	1.80
Domestic	—	@	2.00
Manila Rope	3.00	@	3.50
Sisal Rope	2.50	@	—
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.60	@	1.75
No. 2	.90	@	1.00
Wool Tares, heavy	3.25	@	3.50
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	3.00	@	3.50
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	—	@	2.60
No. 2 Hard White	2.20	@	2.25
No. 1 Soft White	2.25	@	2.30
No. 2 Soft White	1.75	@	—
No. 1 Mixed	—	@	.85
Solid Ledger Stock	—	@	1.75
Ledger Stock, white	1.75	@	—
Ledger Stock, colored	1.50	@	—
No. 1 Books, heavy	1.10	@	1.15
Manila Cuttings	1.80	@	1.90
Print Manila	.70	@	.75
Container Manila	.65	@	—
Kraft Paper	1.75	@	—
No. 1 Mixed Paper	.40	@	.45
Straw Board Chip	.50	@	—
Binders Board Chip	.50	@	—
Corrugated Board	.65	@	.70
Overissue News	.70	@	.75
Old Newspapers	.55	@	.60

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.20	@	2.35
No. 1 Soft White	1.85	@	2.15
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.30	@	1.50
Mixed Ldgers	.85	@	.90
No. 1 Books, heavy	1.00	@	1.10
No. 1 Books, light	.65	@	.75
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.60	@	1.70
Manila Env. Cuttings, extra quality	2.20	@	2.30
No. 1 Old Manila	.95	@	1.00
White Blank News	1.30	@	1.40
No. 1 Kraft	1.75	@	—
Mixed Papers	.40	@	.45
Print Manila	.65	@	.70
Container Manilas	.27½	@	—
Old Newspapers	.50	@	.55
Overissue News	.50	@	.65
Box Board Chips	.35	@	.40
Corrugated Boxes	.60	@	.65
Kraft corrugated boxes	1.20	@	1.22½
Screening Wrappers	.60	@	.65

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	4.00	@	4.25

CHICAGO

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings	3.30	@	3.40
No. 1 Hard White	2.60	@	2.70
No. 1 Soft White	2.10	@	2.15
Ledger & Writings	1.40	@	1.50
Solid Books	1.25	@	1.30
Blanks	1.50	@	1.65
Krafts	1.00	@	1.25
New Kraft Cuts	1.80	@	2.00
Manila Env. Cuts	2.20	@	2.35
Ex. No. 1 Manila	2.20	@	2.35
Print Manila	1.70	@	1.80
Overissue News	.80	@	.90
Old Newspapers—			
No. 1 Folded News	.80	@	.90
No. 1 Mixed Paper	.80	@	.90
Roofing Stocks—			
No. 1	2.00	@	2.25
No. 2	1.85	@	2.00

TORONTO

Paper

Bonds and Ledgers

Delivered

No. 1 White	.35½	@	.36½
No. 1 Tints	.36½	@	.37½
No. 2 White	.26½	@	—
No. 2 Tints	.27½	@	—
No. 4 White	.15	@	.1550
No. 4 Tints	.16	@	.1650
No. 5 Bond—White	11.35	@	—
No. 5 Bond—Tints	12.35	@	—
No. 5 Bond—Golden Rod	13.35	@	—
No. 5 Ledger—White	.11½	@	—
No. 5 Ledger—Tints	.12	@	—
No. 6 Bond—White	10.75	@	—
No. 6 Bond—Tints	11.25	@	—
No. 6 Bond—Golden Rod	12.75	@	—
No. 7 Bond—White	9.10	@	—
No. 7 Bond—Tints	9.70	@	—
No. 7 Bond—Golden Rod	11.20	@	—
Book—			
No. 1 M. F.	7.10	@	7.35
No. 2 M. F.	6.85	@	7.20
No. 3 M. F.	5.60	@	6.20
No. 1 S. C.	7.60	@	7.85
No. 2 S. C.	7.00	@	7.35
No. 3 S. C.	6.10	@	6.35
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.00	@	—
No. 3 Coated and Litho	9.50	@	10.00
Coated tinted	13.00	@	13.50
Wrapping—delivered—			
Rag Brown	4.85	@	5.55
White Wrap	4.00	@	—
"B" Manila	4.90	@	6.25
No. 1 Manila	5.50	@	7.00
Fiber	5.50	@	—
Kraft, No. 2	5.50	@	—

(F. o. b. Cars, Toronto)

News, per ton—			
Rolls (contract)	38.50	@	—
Sheets	45.50	@	—

Pulp

Ground wood	32.00	@	—
Unbleached Sulphite	59.00	@	—
Book (Class 1)	71.00	@	—
Writing (Class 2)	72.00	@	—
Select (Class 3)	73.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.50	@	—
Soft White	2.15	@	—
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.00	@	—
Light and Crumpled Book Stock	.85	@	—
Ledgers and Writings	1.20	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.65	@	—
Kraft	1.00	@	1.70
News and Scrap—			
Strictly Overissue	.65	@	—
Strictly Folded	.60	@	—
No. 1 Mixed Paper	.50	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09	@	.09¼
Fancy Shirt Cuttings	.03½	@	.03¾